

ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED TUNER AMPLIFIER MODEL TX-910 MODEL TX-930

Black and Silver models

BHMD, BHMDN	120V AC, 60Hz
BHMP, BHMPF, MP, MPF	230V AC, 50Hz
BHMW	120V or 220V AC, 50/60Hz
BHMQA	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

AMPLIFIER SECTION

	TX-930	TX-910
Power Output:	60 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40Hz to 20kHz, with no more than 0.2% THD.	45 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40kHz to 20kHz, with no more than 0.3% THD.
Dynamic Power Output:	2 × 100 watts at 4 ohms 2 × 75 watts at 8 ohms	2 × 80 watts at 4 ohms 2 × 60 watts at 8 ohms
Continuous Power Output:	2 × 80 watts at 4 ohms, 1kHz (DIN) 2 × 65 watts at 8 ohms, 1kHz (DIN)	2 × 60 watts at 4 ohms, 1kHz (DIN) 2 × 50 watts at 8 ohms, 1kHz (DIN)
Total Harmonic Distortion:	0.2% at rated power 0.1% at 30 watt output	0.3% at rated power 0.1% at 30 watt output
IM Distortion:	0.2% at rated power 0.1% at 30 watt output	0.3% at rated power 0.1% at 30 watt output
Damping Factor:	50 at 8 ohms	50 at 8 ohms
Frequency Response:	20 — 30,000 Hz ± 1dB	20 — 30,000 Hz ± 1dB
RIAA Deviation:	20 — 20,000 Hz ± 0.8dB	20 — 20,000 Hz ± 0.8dB
Sensitivity and Impedance:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms
Phono Overload:	120mV RMS at 1kHz, 0.2% THD	120mV RMS at 1kHz, 0.3% THD
Signal-to-Noise Ratio:	Phono: 80dB (at 5mV input, IHF-A) CD/Tape: 100dB (IHF-A)	Phono: 80dB (at 5mV input, IHF-A) CD/Tape: 100dB (IHF-A)
Tone Controls:	Bass: ± 10dB at 100Hz Treble: ± 10dB at 10kHz	Bass: ± 10dB at 100Hz Treble: ± 10dB at 10kHz
Muting:	— ∞	— ∞
LOUDNESS (−30dB):	+7dB at 70Hz, +5dB at 10kHz	+7dB at 70Hz, +5dB at 10kHz

TUNER SECTION

FM:	—230V/Worldwide models—	—120V model—
Tuning Range:	87.5—108.00MHz (50kHz steps) 87.5—108.00MHz (50kHz steps) or (200kHz steps) (Worldwide model)	87.9—107.9MHz (200kHz steps)
Usable Sensitivity:	Mono: 12.4dBf, 1.2 μV, 75ohms 1.2 μV (S/N 26dB, 40kHz Dev.) 75ohms DIN Stereo: 19.2dBf, 2.5 μV, 75ohms 25 μV (S/N 46dB, Dev.) 75ohms DIN	Mono: 12.4dBf, 2.3 μV Stereo: 18.2dBf, 4.5 μV
50dB Quieting Sensitivity:	Mono: 18.2dBf, 2.2 μV, 75ohms Stereo: 38.2dBf, 22 μV, 75ohms	Mono: 18.2dBf, 4.5 μV Stereo: 38.2dBf, 45 μV
Capture Ratio:	1.5dB	1.5dB
Image Rejection Ratio:	85dB	40dB
IF Rejection Ratio:	90dB	90dB
Signal-to-Noise Ratio:	Mono: 70dB Stereo: 65dB	Mono: 70dB Stereo: 65dB
Alternate Channel Attenuation:		55dB
Selectivity:	50dB DIN (±300kHz, 40kHz dev.)	50dB
AM suppression Ratio:	50dB	Mono: 0.15% Stereo: 0.30%
Harmonic Distortion:	Mono: 0.15% Stereo: 0.30%	30—15,000Hz ± 1.5dB
Frequency Response:	30—15,000Hz ± 1.5dB	40dB at 1kHz
Stereo Separation:	40dB at 1kHz 30dB at 100—10,000Hz	30dB at 100—10,000Hz
Muting Level:	17.2dBf, 4 μV	17.2dBf, 4 μV
AM:		
Tuning Range:	522—1610kHz (9kHz steps) 522—1610kHz (9kHz steps) or 530—1710kHz (10kHz steps) (World wide model)	530—1710kHz (10kHz steps)
Usable Sensitivity:	30 μV	30 μV
Image Rejection Ratio:	40dB	40dB
IF Rejection Ratio:	40dB	40dB
Signal-to-Noise Ratio:	40dB	40dB
Harmonic Distortion:	0.8%	0.8%

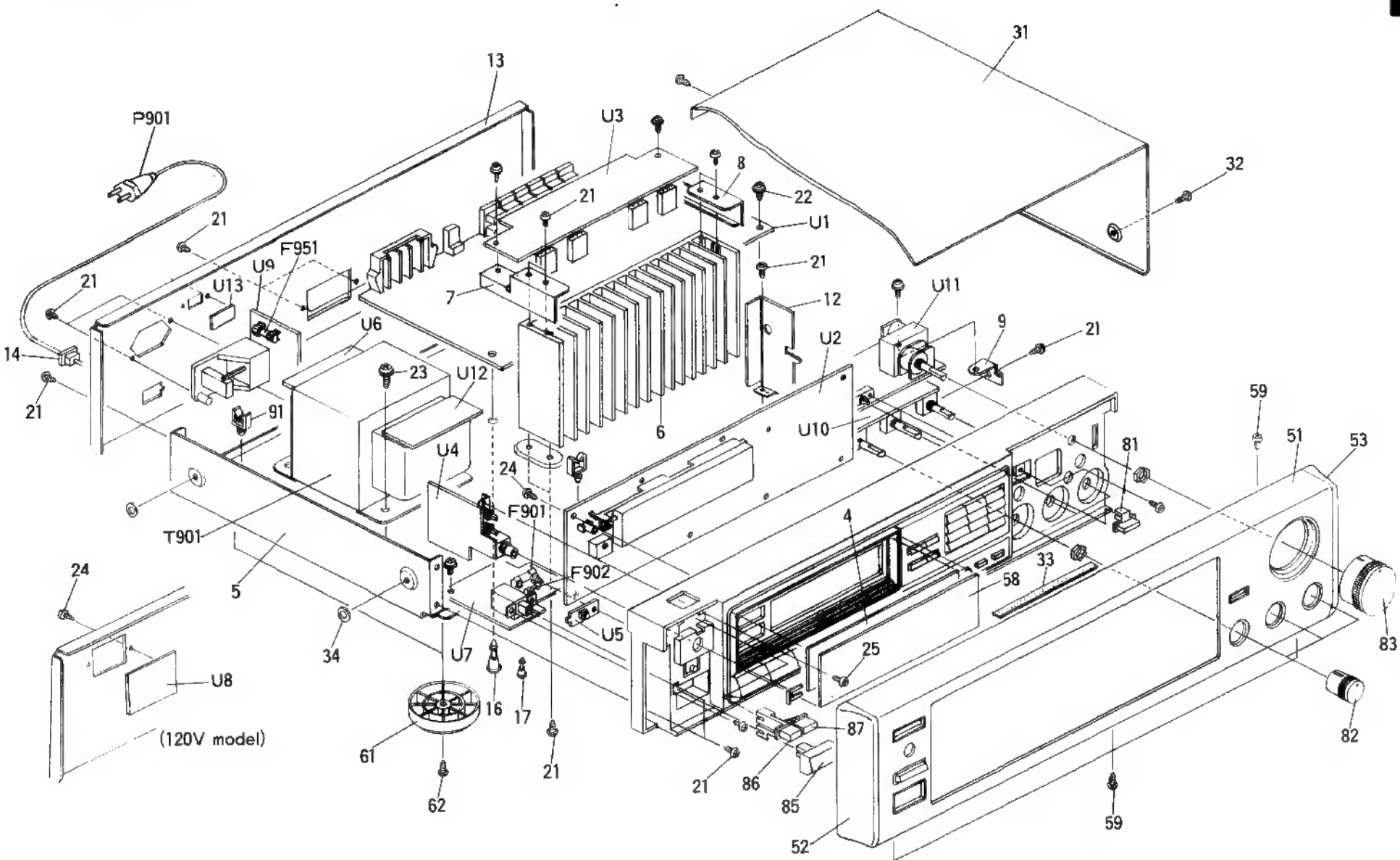
GENERAL

	TX-930	TX-910
Dimensions (W×H×D):	455×120×316mm 17-15/16" × 4-6/8" × 12-7/16"	455×120×316mm 17-15/16" × 4-6/8" × 12-7/16"
Weight:	8.0kg, 17.6 lbs.	7.2kg, 15.9 lbs.

Transmitter: Infrared
Signal range: Approx. 5 meters (16ft. \times 4")
Power supply: Two "AA" batteries (1.5V \times 2)

Specifications and features are subject to change without notice.

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.



PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	27110749Y	Front bracket ass'y
	27110750Y	Front bracket ass'y <S>
4	28133254Y	Back plate
5	27100228Y	Chassis
6	27160293Y	Radiator
7	27141441Y	Bracket LH
8	27141442Y	Bracket RH
9	27141443Y	Bracket PC
12	27130643AY	Bracket, shield
13	27121686Y	Rear panel <D>
	27121687Y	Rear panel <P>
	27121689Y	Rear panel <W>
	27121690Y	Rear panel <Q>
14	27300750	⚠ Bushing cord
16	27190524	KGLS-14RT,Holder
17	27190266	KGLS-12RT,Holder
21	834430088	3TTS+8B(BC),Self-tapping screw
22	831130088	3TTW+8B,Self-tapping screw
23	830440089	4TTC+8C(BC),Self-tapping screw
24	833430080	3TTP+8P(BC),Self-tapping screw
25	82143006	3P+6FN(BC),Pan head screw
26	801433	3SMS10W.SW+14B(BC),Sems Self-tapping screw
31	28184471AY	Top cover
32	834430088	3TTS+8B(BC),Self-tapping screw
33	28140680	Cushion
34	27270212	Spacer <P/W/Q>
51	1A415701K	Front panel ass'y
	1A416701K	Front panel ass'y <S>
52	28125226BY	End cap L
53	28125227BY	End cap R
58	28191617Y	Clear plate
59	833430080	3TTP+8P(BC),Self-tapping screw
61	27175254	Leg
62	834430088	3TTS+8B(BC),Self-tapping screw
81	28324162Y	Knob, Loudness
	28324177Y	Knob, Loudness <S>
82	28324150-1A	Knob, Level
	28324151	Knob, Level <S>
83	28324163	Knob, Volume
	28324184	Knob, Volume <S>
85	28324140	Knob,Power
	28324184	Knob,Power <S>

REF. NO.	PART NO.	DESCRIPTION
86	28324170	Knob, Speaker A
	28324172	Knob, Speaker A <S>
87	23824171	Knob, Speaker B
	23824173	Knob, Speaker B <S>
91	27300833	WS-2NS,Clamp
P901	252050	⚠ 5A(8T-6),Primary fuse <D/W>
P902	252075	⚠ 2.5A-SE-EAK,Primary fuse <P/W/Q>
P951	252074	⚠ 2A-SE-EAK,Fuse <P>
P901	253163Y or	⚠ AS-UC-6 #18
	253174Y	⚠ Power supply cord <D>
	253164Y or	⚠ AS-CEE
	253175Y	⚠ Power supply cord <P/W>
	253170	⚠ AS-SAA, Power supply cord <Q>
P902	25060044	Terminal GND
P951	25050904	⚠ NSCT-2P697,AC outlet <Q>
Q503,Q504	2202282,	2SA1265N-R,
	2202283,	2SA1265N-O,
	2201693,	2SA1491-O,
	2201694 or	2SA1491-Y or
	2201696	2SA1491-P,Power transistors
Q505,Q506	2202292,	2SC3182N-R,
	2202293,	2SC3182N-O,
	2201703,	2SC3855-O,
	2201704 or	2SC3855-Y or
	2201706	2SC3855-P,Power transistors
T901	2300753AY	⚠ NPT-1129D,Power transformer <D>
	2300754Y	⚠ NPT-1129P,Power transformer <P>
	2300755Y	⚠ NPT-1129DG,Power transformer <W>
	2300756Y	⚠ NPT-1129Q,Power transformer <Q>
U1	1A415525-3	NARF-4325-3,Tuner circuit pc board ass'y <D>
	1A415525-3A	NARF-4325-3A,Tuner circuit pc board ass'y <P/Q>
	1A415525-3B	NARF-4325-3B,Tuner circuit pc board ass'y <W>
U2	1A415526-3	NADIS-4326-3,Display circuit pc board ass'y <D>
	1A415526-3A	NADIS-4326-3A,Display circuit pc board ass'y <P/Q>
	1A415526-3B	NADIS-4326-3B,Display circuit pc board ass'y <W>

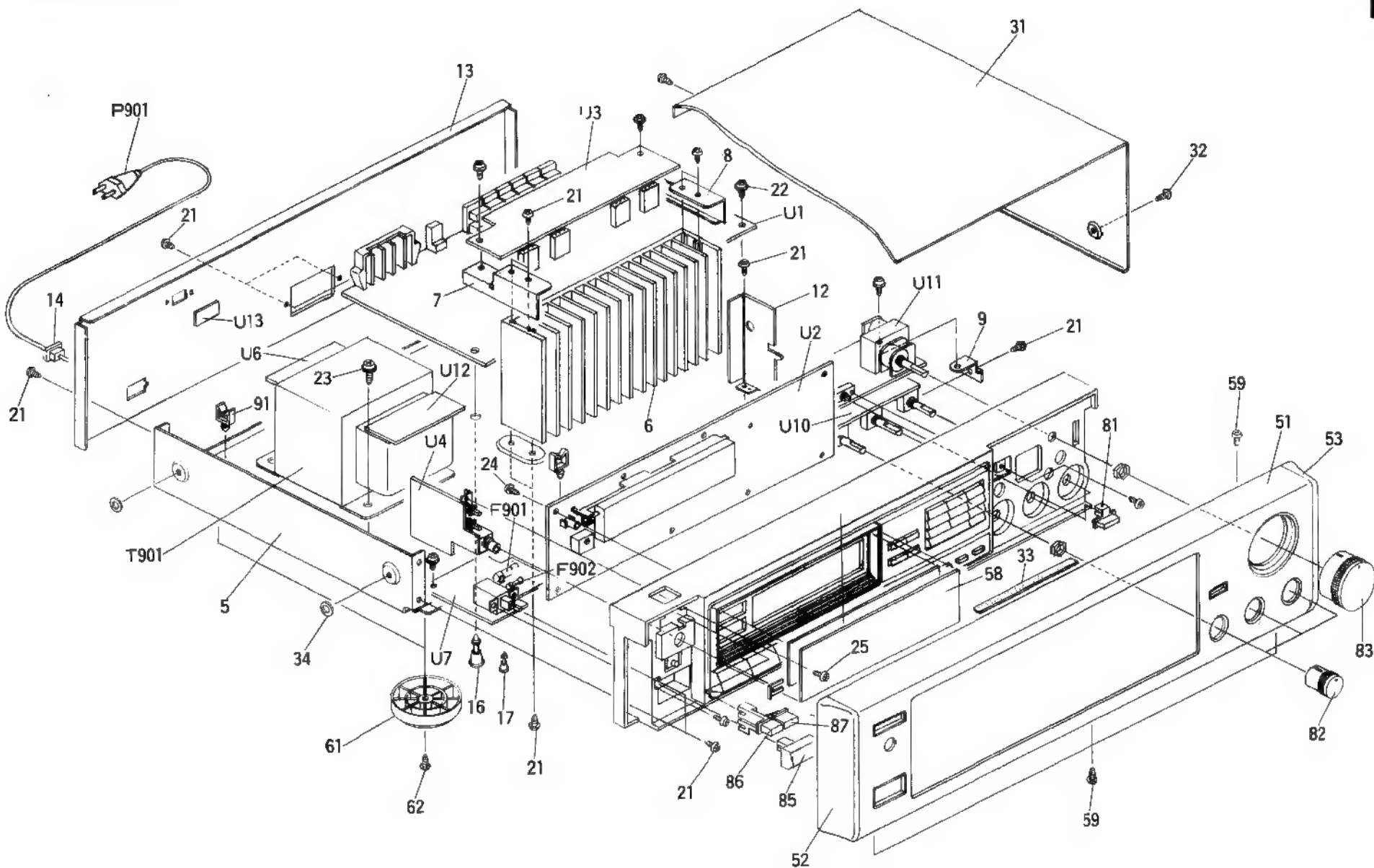
REF. NO.	PART NO.	DESCRIPTION
U3	1A415527-3	NAAF-4327-3,Power amplifier circuit pc board ass'y <D>
	1A415527-3A	NAAF-4327-3A,Power amplifier circuit pc board ass'y <P/W/Q>
U4	1A415528-3	NASW-4328-3,Headphone terminal pc board ass'y <D>
	1A415528-3A	NASW-4328-3A,Headphone terminal pc board ass'y <P/W/Q>
U5	1A415529-3	NASW-4329-3,Power switch pc board ass'y
U6	1A415530-3	NAETC-4330-3,Terminal pc board
U7	1A415531-3	NAPS-4331-3,Power supply circuit pc board ass'y <D>
	1A415531-3A	NAPS-4331-3A,Power supply circuit pc board ass'y <P>
	1A415531-3B	NAPS-4331-3B,Power supply circuit pc board ass'y <W>
	1A415531-3C	NAPS-4331-3C,Power supply circuit pc board ass'y <Q>
U8	1A415532-3	NAETC-4332-3,Outlet terminal pc board ass'y <D>
U9	1A415533-3	NAETC-4333-3,Outlet terminal pc board ass'y <P>
	1A415533-3A	NAETC-4333-3A,Outlet terminal pc board ass'y <W>
U10	1A415534-3	NAAF-4334-3,Tone control circuit pc board ass'y <D>
	1A415534-3A	NAAF-4334-3A,Tone control circuit pc board ass'y <P/W/Q>
U11	1A415535-3	NAETC-4335-3,Volume control circuit pc board ass'y
U12	1A415537-3	NAETC-4337-3,Terminal pc board ass'y
U13	1A415538-3	NASW-4338-3,Voltage selector switch pc board ass'y <W>

NOTE: :Black model only
<S>:Silver model only
<D>:120V model only
<P>:230V model only
<W>:Worldwide model only
<Q>:240V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

EXPLODED VIEW

MODEL TX-910



PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	27110763Y	Front bracket ass'y
	27110764Y	Front bracket ass'y <S>
4	28133254Y	Back plate
5	27100228Y	Chassis
6	27160272AY or 27160290Y	Radiator
7	27141441Y	Bracket LH
8	27141442Y	Bracket RH
9	27141443Y	Bracket PC
12	27130643AY	Bracket, shield
13	27121691Y	Rear panel <D>
	27121692Y	Rear panel <P>
	27121694Y	Rear panel <W>
	27121695Y	Rear panel <Q>
14	27300750	⚠ Bushing, cord
16	27190524	KGLS-14RT, Holder
17	27190266	KGLS-12RT, Holder
21	834430088	3TTS+8B(BC), Self-tapping screw
22	831130088	3TTW+8B, Self-tapping screw
23	830440089	4TTC+8C(BC), Self-tapping screw
24	833430080	3TTP+8P(BC), Self-tapping screw
25	82143006	3P+6FN(BC), Pan head screw
26	801433	3SMS10W.SW+14B(BC), Self-tapping screw
31	28184471AY	Top cover
32	834430088	3TTS+8B(BC), Self-tapping screw
33	28140680	Cushion
34	27270212	Spacer <P/W/Q>
51	1A419701K	Front panel ass'y
	1A420701K	Front panel ass'y <S>
52	28125226BY	End cap L
53	28125227BY	End cap R
58	28191617Y	Clear plate
59	833430080	3TTP+8P(BC), Self-tapping screw
61	27175254	Leg
62	834430088	3TTS+8B(BC), Self-tapping screw
81	28324162Y	Knob, Loudness
	28324177Y	Knob, Loudness <S>
82	28324150-1	Knob, Level
	28324151A	Knob, Level <S>

REF. NO.	PART NO.	DESCRIPTION
83	28324163	Knob, Volume
	28324182	Knob, Volume <S>
85	28324140	Knob, Power
	28324184	Knob, Power <S>
86	28324170	Knob, Speaker A
	28324172	Knob, Speaker A <S>
87	23824171	Knob, Speaker B
	23824173	Knob, Speaker B <S>
91	27300833	WS-2NS, Clamp
P901	252049	⚠ 4A(ST-6), Primary fuse <D/W>
P902	252073	⚠ 1 GA-SE-EAK, Primary fuse <P/W/Q>
P901	253163Y or 253174Y 253164Y or 253175Y 253170	⚠ AS-UC-6 #18, Power supply cord <D> AS-CEE, Power supply cord <P/W> AS-SAA, Power supply cord <Q>
P902	25060044	Terminal GND
Q503, Q504	2202492	2SA1264N-R,
	2202493	2SA1264N-O,
	2202243	2SA1694-O,
	2202244	2SA1694-Y or
	2202246	2SA1694-P, Power amplifier transistor
Q505, Q506	2202502	2SC3812N-R,
	2202503	2SC3812N-O,
	2202253	2SC4467-O,
	2202254	2SC4467-Y or
	2202256	2SC4467-P, Power amplifier transistor
T901	2300757Y	⚠ NPT-1130D, Power transformer <D>
	2300758Y	⚠ NPT-1130P, Power transformer <P>
	2300759Y	⚠ NPT-1130DG, Power transformer <W>
	2300760Y	⚠ NPT-1130Q, Power transformer <Q>
U1	1A419525-4	NARF-4325-4, Tuner circuit pc board ass'y <D>
	1A419525-4A	NARF-4325-4A, Tuner circuit pc board ass'y <P/Q>
	1A419525-4B	NARF-4325-4B, Tuner circuit pc board ass'y <W>

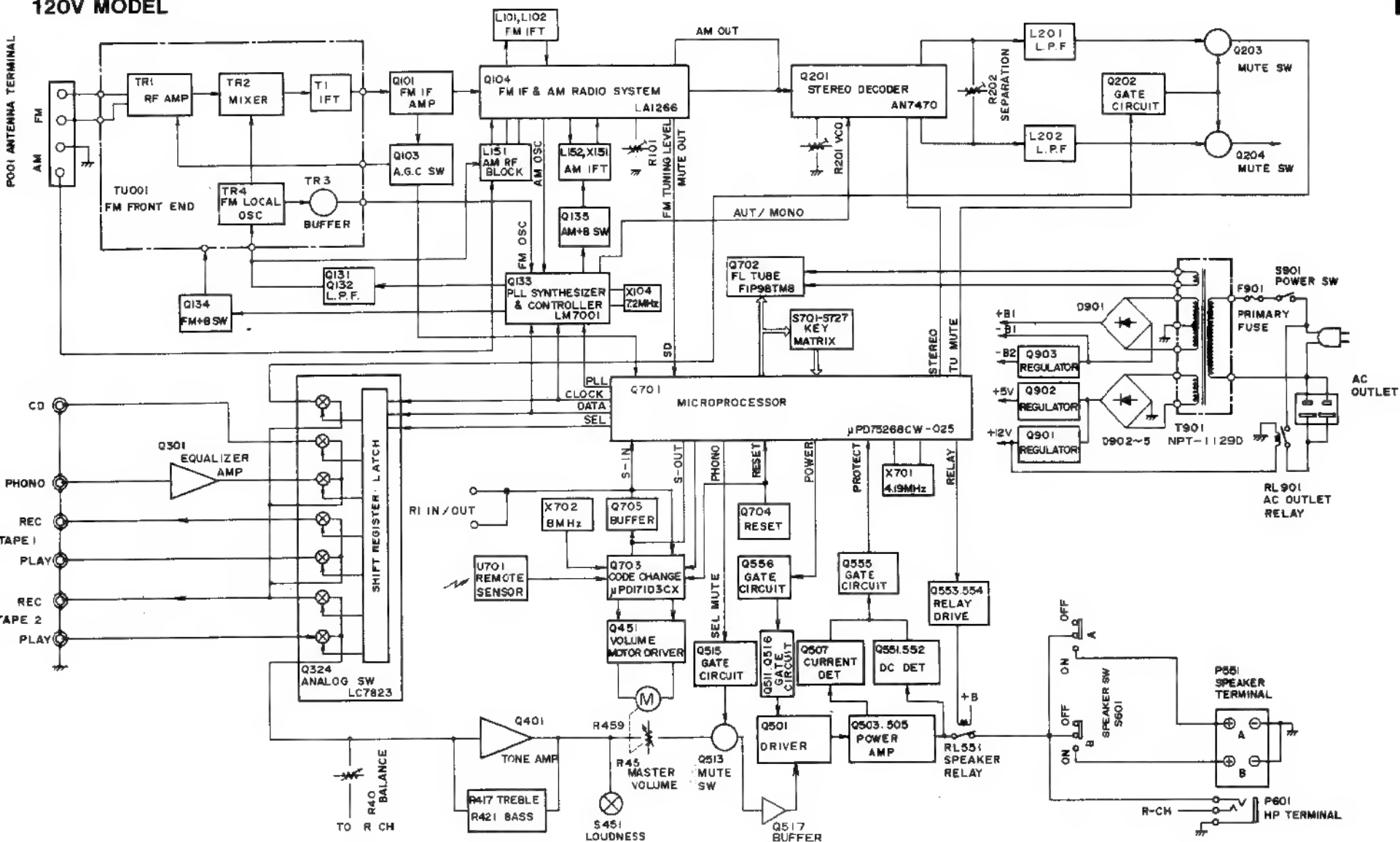
REF. NO.	PART NO.	DESCRIPTION
U2	1A419526-4	NADIS-4326-4, Display circuit pc board ass'y <D>
	1A419526-4A	NADIS-4326-4A, Display circuit pc board ass'y <P/Q>
	1A419526-4B	NADIS-4326-4B, Display circuit pc board ass'y <W>
U3	1A419527-4	NAAF-4327-4, Power amplifier circuit pc board ass'y <D>
	1A419527-4A	NAAF-4327-4A, Power amplifier circuit pc board ass'y <P/W/Q>
U4	1A419528-4	NASW-4328-4, Headphone terminal pc board ass'y <D>
	1A419528-4A	NASW-4328-4A, Headphone terminal pc board ass'y <P/W/Q>
U5	1A419529-4	NASW-4329-4, Power switch pc board ass'y
U7	1A419531-4	NAPS-4331-4, Power supply circuit pc board ass'y <D>
	1A419531-4A	NAPS-4331-4A, Power supply circuit pc board ass'y <P>
	1A419531-4B	NAPS-4331-4B, Power supply circuit pc board ass'y <W>
	1A419531-4C	NAPS-4331-4C, Power supply circuit pc board ass'y <Q>
U10	1A419534-4	NAAF-4334-4, Tone control circuit pc board ass'y <D>
	1A419534-4A	NAAF-4334-4A, Tone control circuit pc board ass'y <P/W/Q>
U11	1A419535-4	NAETC-4335-4, Volume control pc board ass'y
U13	1A419538-4	NASW-4338-4, Voltage selector switch pc board ass'y <W>

NOTE: : Black model only
<S>: Silver model only
<D>: 120 V model only
<P>: 230 V model only
<W>: Worldwide model only
<Q>: 240 V model only

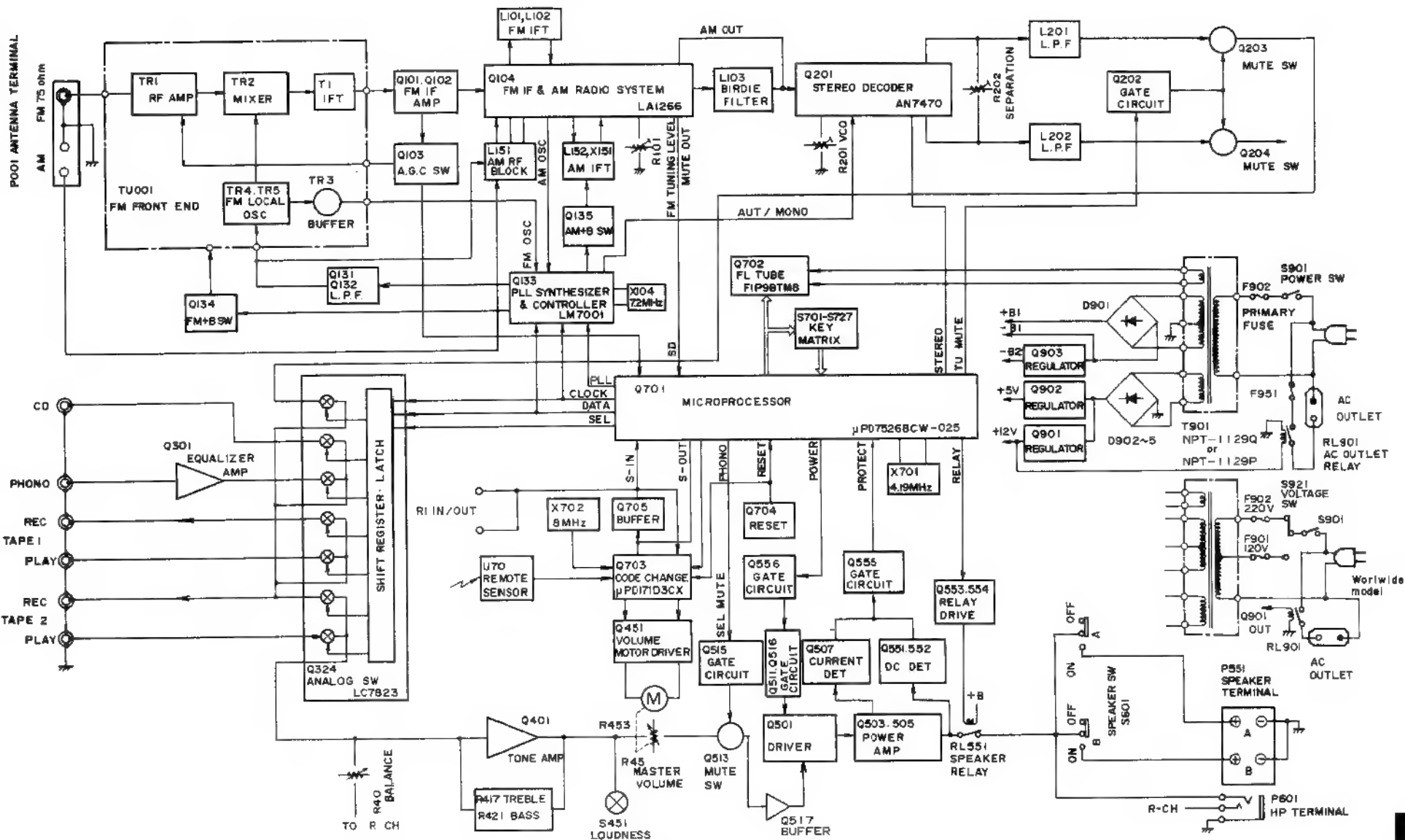
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

BLOCK DIAGRAM

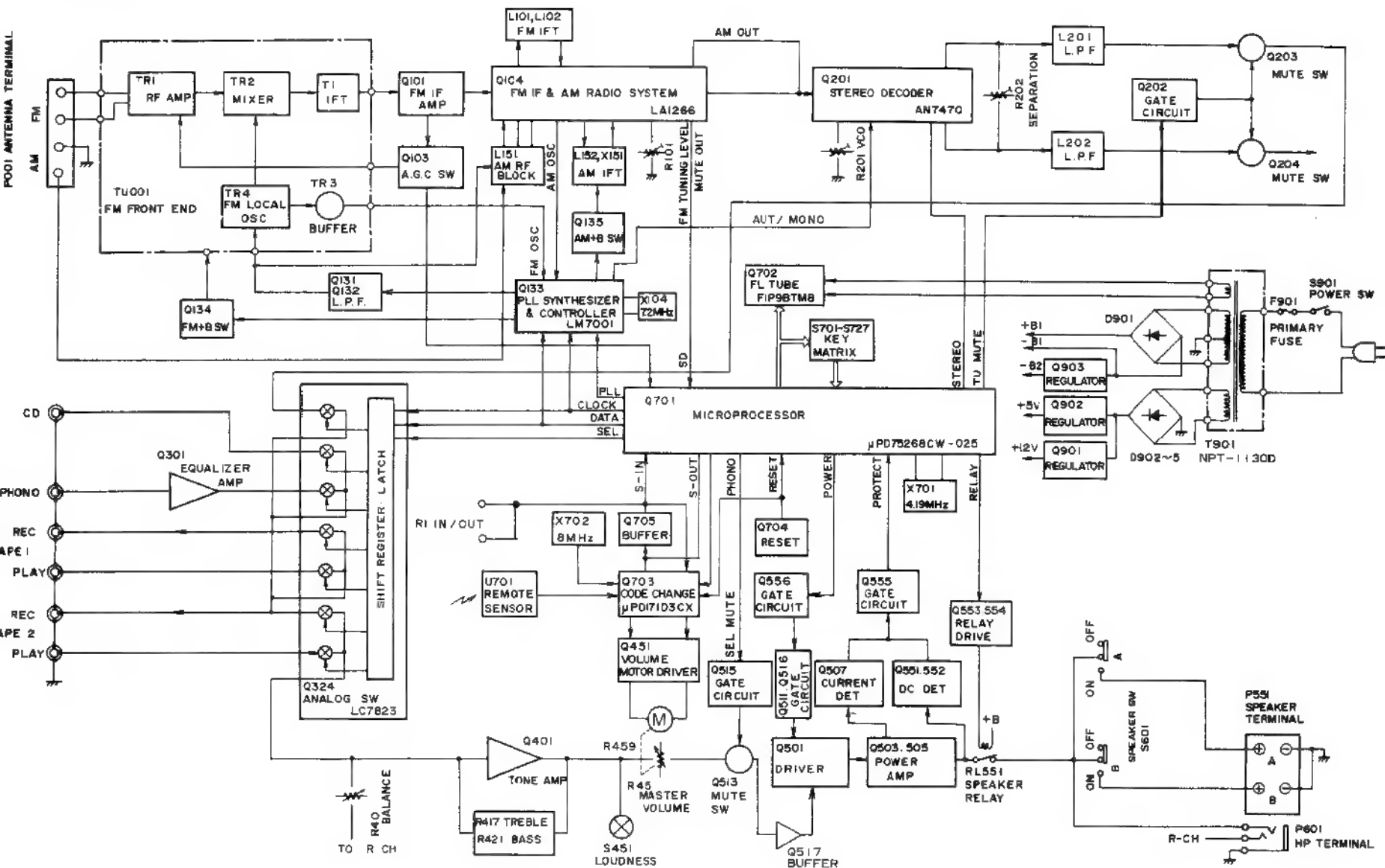
MODEL TX-930
120V MODEL



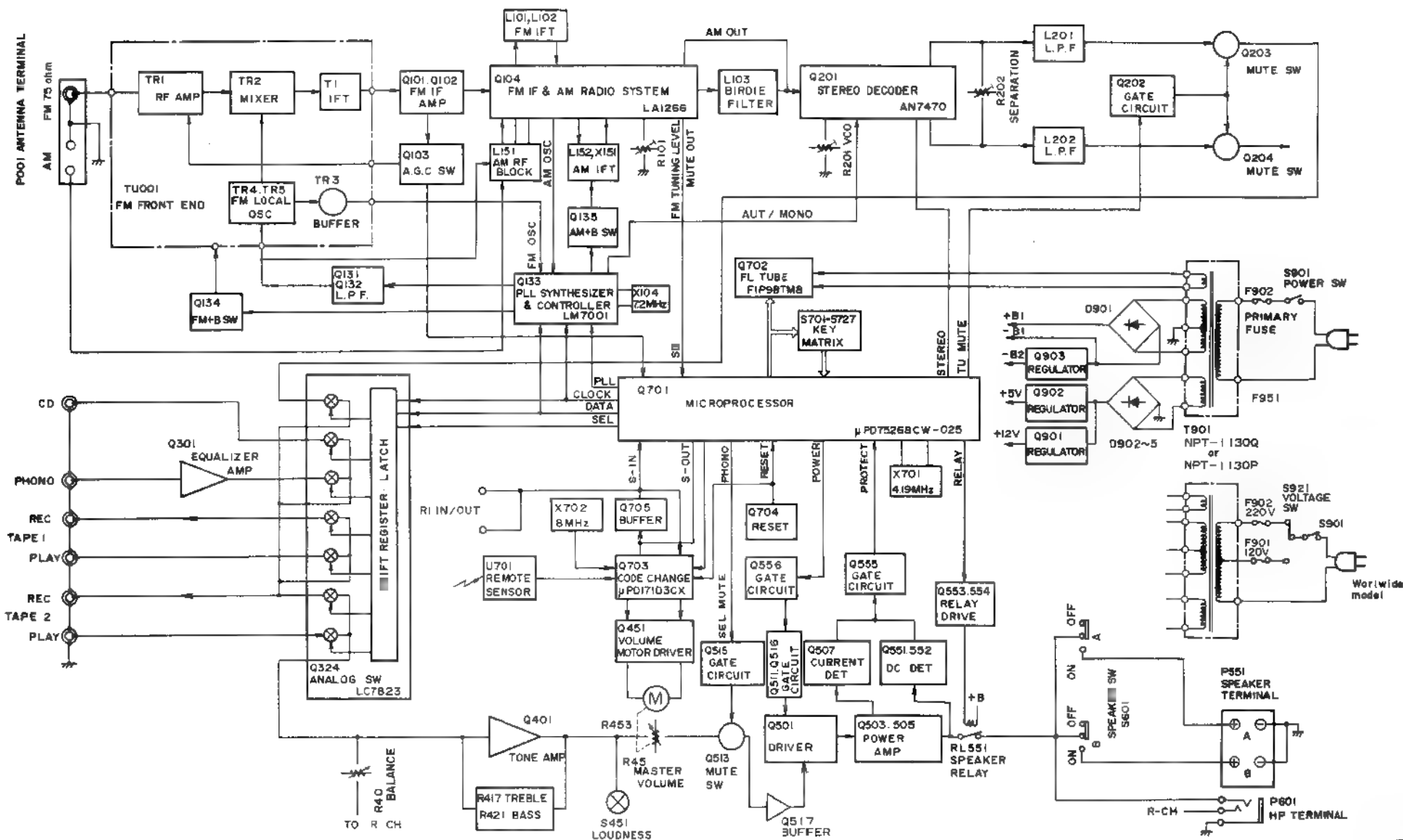
OTHER MODELS



BLOCK DIAGRAM

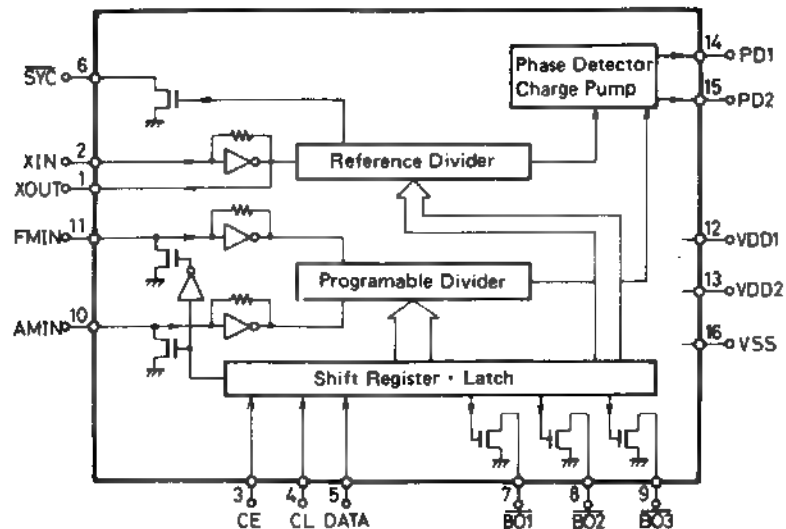
MODEL TX-910
120V MODEL

OTHER MODELS

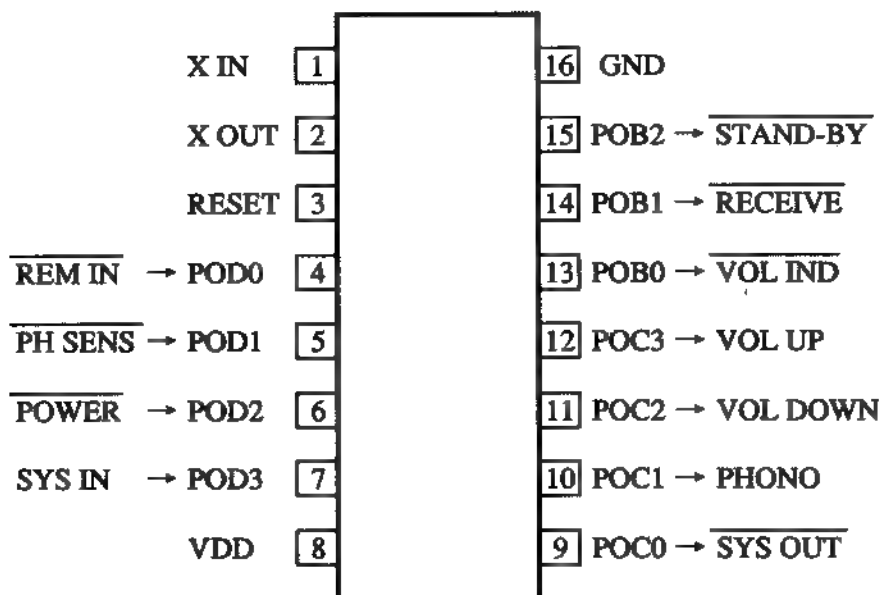
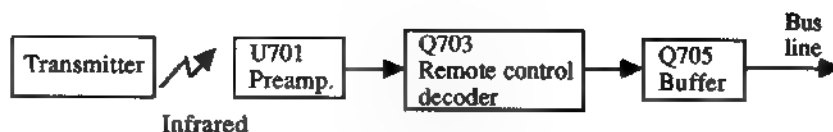


IC BLOCK DIAGRAM AND DESCRIPTION

LM7001(PLL synthesizer and controller)

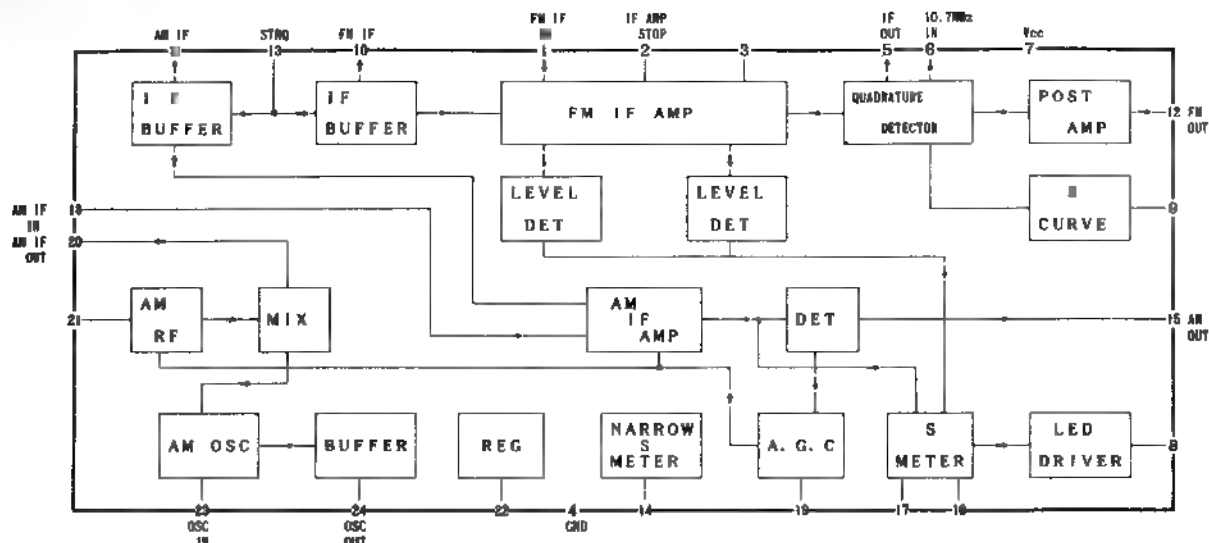


Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of micro processor.
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of micro processor.
5	DATA	Serial data input terminal. Connect to the DATA terminal of micro processor.
6	SYN	Not used.
7	AUTO/MONO	Auto/Mono control output terminal. "H" when Auto.
8	BO2	FM control signal output terminal. "L" when FM.
9	BO3	AM control signal output terminal. "L" when AM.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator terminal.
12	VDD 1	Power supply terminal for back-up.
13	VDD 2	Power supply terminal.
14	PD1	Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters.
15	PD2	
16	Vss	Ground terminal.

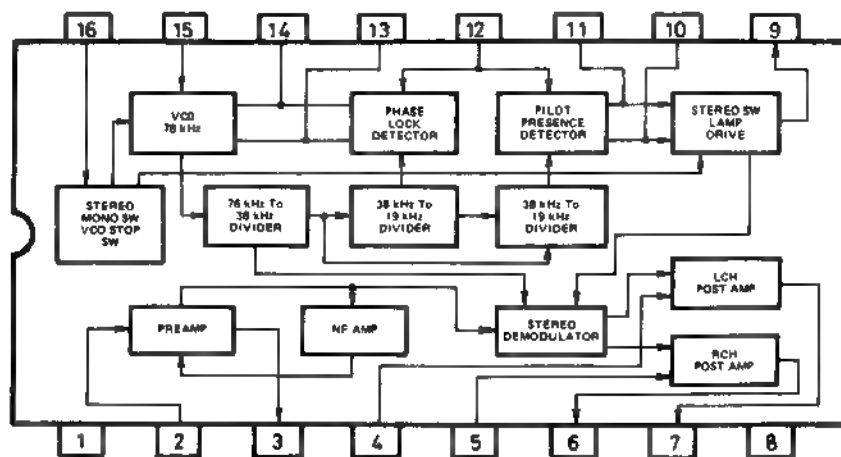
μPD17103CX-528(Remote control decoder)

Pin No.	Symbol	Terminal	Description
1	XIN	OSC	Connect to the 8.00MHz ceramic oscillator.
2	XOUT		
3	RES	<u>RESET</u>	System reset terminal. Active low.
4	POD0	<u>REMOTE IN</u>	Signal input terminal from preamp. for remote control. Active low.
5	POD1	<u>PHONO SENSE</u>	Phono detection input terminal. Active low.
6	POD2	<u>POWER</u>	Stand-by detection input terminal. During low input, only the POWER code ■ decoded.
7	POD3	SYS IN	System code input terminal.
8	V _{DD}	+B	Power supply terminal.
9	POC0	<u>SYS OUT</u>	Output at this terminal are the custom code (16bits) remote control code input to REMOTE IN, data code (8bits), and the serial code (12bits) that has been converted corresponding to the decoded data code (8bits)
10	POC1	PHONO	When the player PLAY/REJECT is input, a high pulse of 200ms is output.
11	POC2	VOL DOWN	When the volume DOWN code is input, a high pulse of 120ms is output.
12	POC3	VOL UP	When the volume UP code is input, a high pulse of 120ms is output.
13	POB0	<u>VOL IND</u>	During the output of VOLUME UP/DOWN, a pulse (<u>T</u> <u>T</u> <u>T</u> <u>T</u> = 250ms) is output. (Not used.)
14	POB1	<u>RECEIVE</u>	This is the display output for remote control reception. Output is low when decoded code ■ being recieved.
15	POB2	<u>STAND-BY</u>	STAND-BY indication terminal.
16	V _{SS}	GND	Ground terminal.

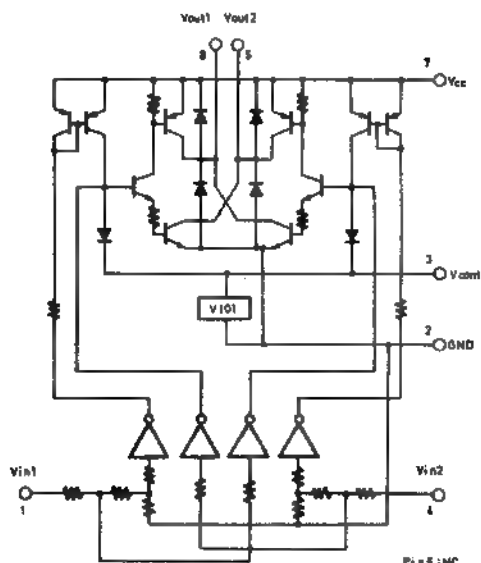
LA1266(FM IF and AM radio system)



AN7470(Stereo decoder)



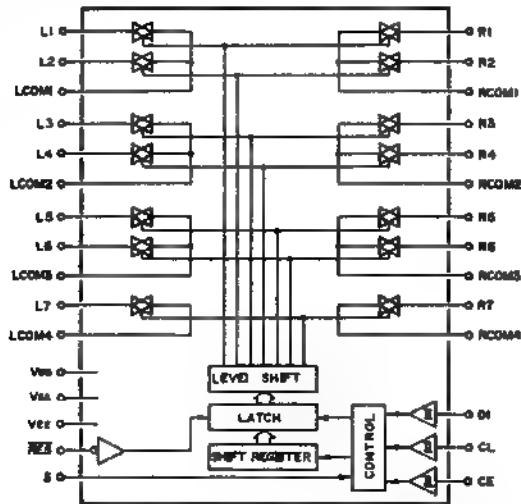
LB1630 (Motor driver)



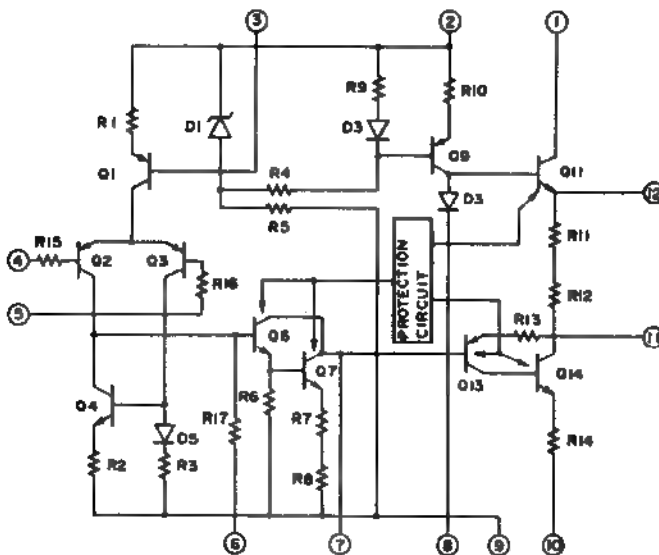
TRUTH TABLE

IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	Normal
L	H	L	H	Reverse
H	H	OFF	OFF	Wait
L	L	OFF	OFF	Wait

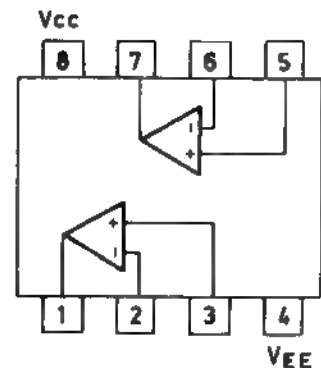
LC7823/LC7823N(Analog switch)

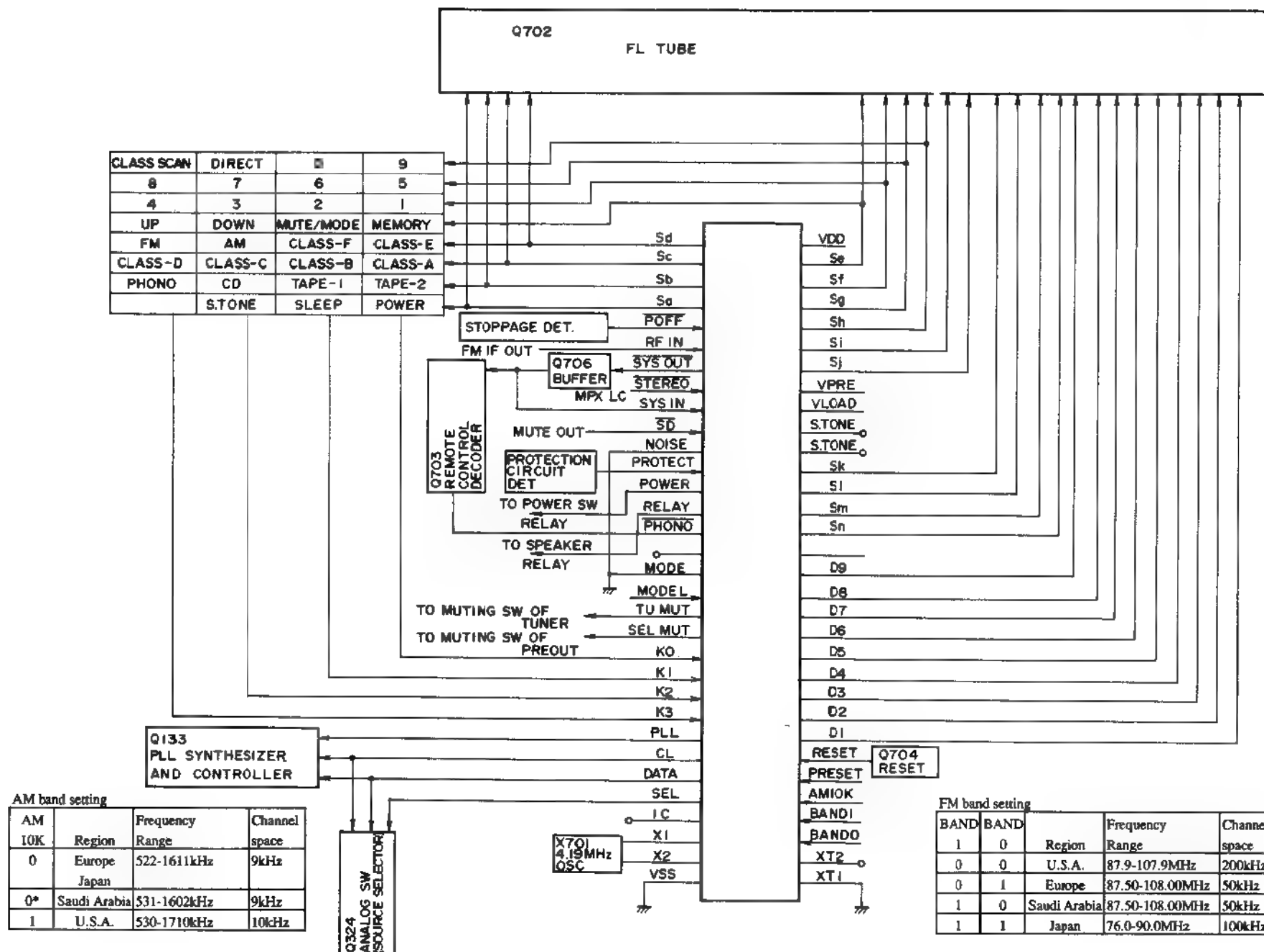


Pin No.	Terminal	Description
1,30	CD	On when the input selector is CD.
2,29	PHONO	On when the input selector is PHONO.
3,28	LCOM1,RCOM1	Common terminal.
4,27	TAPE-1 REC	Off when the input selector is TAPE-1.
5,26	TAPE-1 PB	On when the input selector is TAPE-1.
6,25	LCOM2,RCOM2	Common terminal.
7,24	TAPE-2 REC	Off when the input selector is TAPE-2.
8,23	TAPE-2 PB	On when the input selector is TAPE-2.
9,22	LCOM3,RCOM3	Common terminal.
10,21	TUNER	On when the input selector is TUNER.
11,20	LCOM4,RCOM4	Common terminal.
12	VEE	Negative power supply terminal.(-15V)
13	CE	Chip enable terminal.Connect to the terminal FUNC of the microprocessor.
14	DI	Serial data input terminal.Connect to the terminal DATA of the microprocessor.
15	CL	Serial clock terminal.Connect to the terminal CL of the microprocessor.
16	Vss	Ground terminal.
17	S	Select terminal.
18	RES	Reset terminal.
19	VDD	Power supply terminal.(+5V)

 μ PC1225H(Power amplifier driver)

NJM4558D-X (Operation amplifier)

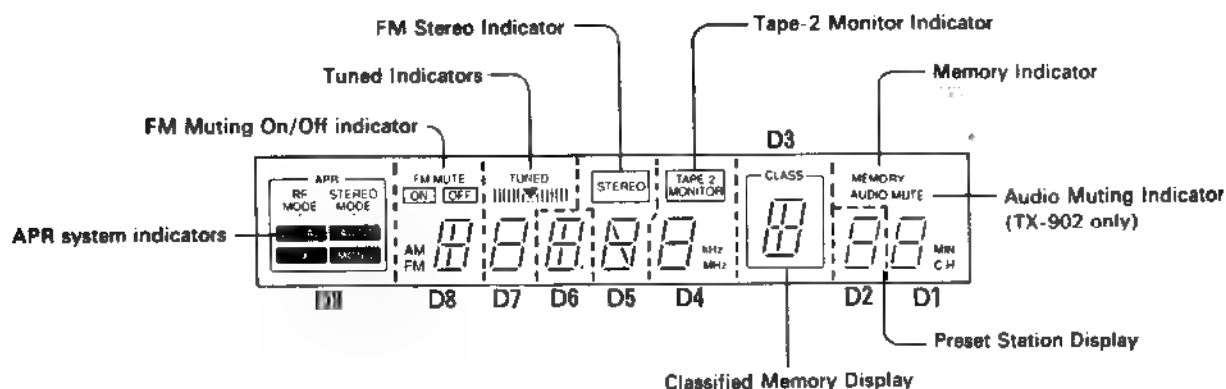




Pin No.	Symbol	Description						
1	Sd	Segment and key scan output terminals. "H" when active.						
2	Sc							
3	Sb							
4	Sa							
5	POFF	This is the input terminal for detection of the stoppage of electric current. "L" when the stoppage of electric current.						
6	RF IN	RF mode input terminal. <table><tr><td>RF IN</td><td>RF MODE</td></tr><tr><td>L</td><td>LOCAL</td></tr><tr><td>H</td><td>DX</td></tr></table>	RF IN	RF MODE	L	LOCAL	H	DX
RF IN	RF MODE							
L	LOCAL							
H	DX							
7	SYS OUT/ SYS EN	System code output terminal. "L" when active. Initializing input terminal when the power turns on.						
8	STEREO	Stereo broadcast detection input terminal. "L" when stereo broadcast.						
9	SYS IN	System code input terminal. "H" when active.						
10	SD	Broadcast detection input terminal. "L" when active. Control the stop of auto tuning and output TU MUT(#19).						
11	NOISE	Noise detection input terminal. Not used.						
12	PROTECT	Protection circuit operation detection input terminal.						
13	POWER	Power control output terminal.						
14	RELAY	Speaker relay control output terminal.						
15	PHONO	Phono control output terminal.						
16		Not used.						
17	MODE	Initializing input terminal for operation mode setting.						
18	MODEL	Initializing input terminal for model setting of receiver.						
19	TU MUT	Muting output terminal. "H" when active.						
20	SEL MUT	Audio muting output terminal. Not used.						
21	K0	Key scan input terminals. "H" when active.						
22	K1							
23	K2							
24	K3							
25	PLL	Connect to the terminal CE of PLL IC (LM7001 Q133).						
26	CL	Connect to the terminal CL of PLL IC and analogue switch.						
27	DATA	Connect to the terminals DATA of PLL IC and analogue switch.						
28	SEL	Analog switch control output terminal. Connect to the terminal SEL of analogue switch (LC7823 Q324).						

Pin No.	Function	Description
29	IC	Internal connected.
30	X1	Ceramic oscillator connection terminal for main system clock.
31	X2	Connect to the 4.19MHz ceramic oscillator.
32	VSS	Ground terminal.
33	XT1	Ceramic oscillator connection terminal for sub system clock.
34	XT2	Not used.
35	BAND0	Initializing input terminal for region setting of FM band.
36	BAND1	
37	AM 10K	Initializing input terminal for region setting of AM band.
38	PRESET	Initializing input terminal for operation mode setting.
39	RESET	Reset input terminal. "L" when active.
40	D1	Digit output terminals. "H" when active.
41	D2	
42	D3	
43	D4	
44	D5	
45	D6	
46	D7	
47	D8	
48	D9	
49		Not used.
50	Sn	Segment output terminals. "H" when active.
51	Sm	
52	Sl	
53	Sk	
54	S.TONE	SELECTIVE TONE indication output terminal. Not used.
55	S.TONE	SELECTIVE TONE control output terminal. Not used.
56	VLOAD	Pull-down resistor connection terminal of FIP controller/driver.
57	VPRE	Power supply terminal of output buffer of FIP controller/driver.
58	Sj	Segment and key scan output terminals. "H" when active.
59	Si	
60	Sh	
61	Sg	
62	Sf	
63	Se	
64	VDD	Power supply terminal. (+5V)

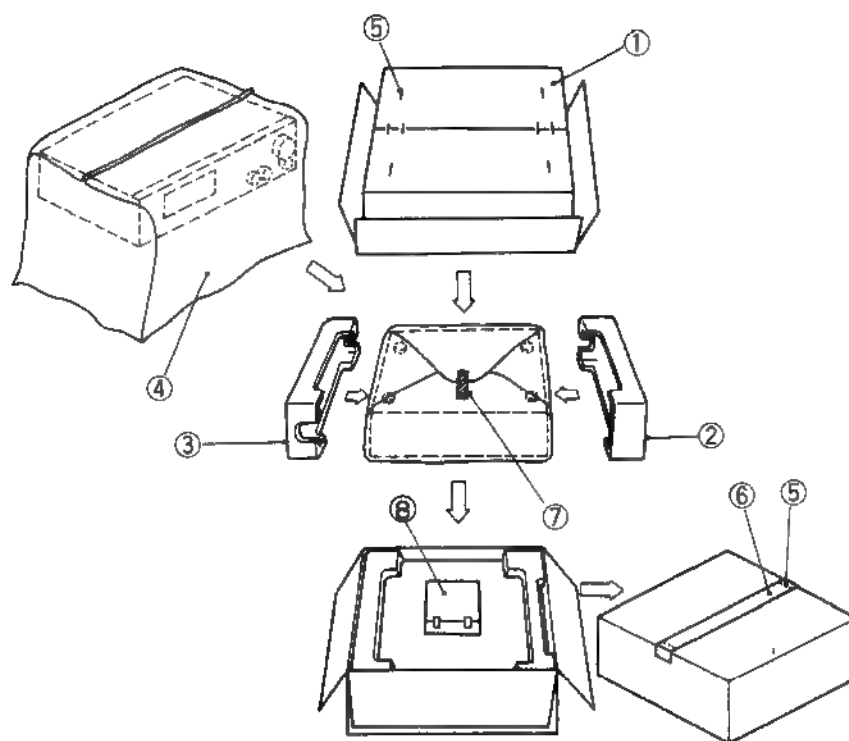
FIP9BTM8(Fluorescent tube)



Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Electrode	F	F	NP	9G	NP	NP	NP	NP	NP	9G	NP	8G	NP	NP	8G	P(n)
Terminal No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Electrode	7G	7G	P(m)	6G	6G	P(l)	P(k)	5G	P(j)	P(i)	4G	P(h)	NP	4G	P(g)	Note: F:Filament
Terminal No.	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
Electrode	3G	P(f)	P(e)	3G	P(a)	2G	2G	P(b)	1G	P(c)	P(d)	1G	NP	F	F	G:Grid
																P:Anode
																NP:No pin

	D9	D8	D7	D6	D5	D4	D3	D2	D1
Sa	APR	a	a	a	a	a	a	a	a
Sb	STEREO MODE	b	b	b	b	b	b	b	b
Sc	AUTO	c	c	c	c	c	c	c	c
Sd	MONO	d	d	d	d	d	d	d	d
Se	DX	e	e	e	e	e	e	e	e
Sf	LOCAL	f	f	f	f	f	f	f	f
Sg	RF MODE	g	g	g	g	g	g	g	g
Sh					h				
Si		i		i			i		
Sj		FM MUTE	TUNED		STEREO	TAPE-2	CLASS		MEMORY
Sk		ON	▼ (TUNED)				k		SLEEP
Sl		OFF							AUDIO MUTE
Sm		AM				kHz			MIN
Sn		FM				MHz			CH

PACKING VIEW



REF. NO.	PART NO.	Description
1	29052559Y	Master carton box <TX-930>
	29052561Y	Master carton box <S> <TX-930>
	29052563Y	Master carton box <TX-910>
	29052565Y	Master carton box <S> <TX-910>
2	29091440BY	Pad L
3	29091441BY	Pad R
4	29100034A	850×650, Styrene bag
5	282301	Staple
6	29110071	PP tape
7	261504	Adhesive tape
8	Accessory bag ass'y	
	29341795Y	Instruction manual <D>
	29341797Y	Instruction manual <P/W/Q/C>
	292111	FM antenna <D/W>
	292112	FM antenna <P/Q>
	29065462	FM antenna adaptor <W/Q>
	232140	NMA-3057, AM loop antenna
	25055040	CV-K-2, Conversion plug <W>
	3010054	UM-3, Two batteries
	24140223Y	RC-223S, Remote control transmitter
	2010200	Cord RI
	29100097	350×250, Styrene bag
	29365019A	Warranty card <N>
	28358002J	Service station list <N>
	29365024A	Warranty card <F>
	29100107	Styrene bag for warranty card <F>

NOTE: :Black model only
 <S>:Silver model only
 <D>:120V model only
 <P>:230V model only
 <W>:Worldwide model only
 <Q>:240V model only
 <N>:U.S.A. model only
 <F>:French model only
 <C>:Canadian model only

ADJUSTMENT PROCEDURES

Preparation

1.Input

FM mono:1kHz,75kHz devi.,60dB/ μ V

FM stereo:1kHz,75kHz devi.,60dB/ μ V

Pilot signal 19kHz 7.5kHz devi.

AM:400Hz 30% mod.

2.Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

3.Standard Knob Position

VOLUME.....Maximum

BASS/TREBLE/BALANCE.....Center

MUTING/LOUDNESS.....Off

INPUT SELECTOR.....CD

SPEAKERS.....A

Confirming Operation

1.Protection circuit

a.Speaker relay

The speaker relay turns on after the power switch turned on for 5 minutes.

The speaker relay turns off immediately after the power switch turns off.

b. Over-voltage confirmation

The speaker relay is off immediately after DC voltage $\pm 6V$ is applied to the terminal CD.

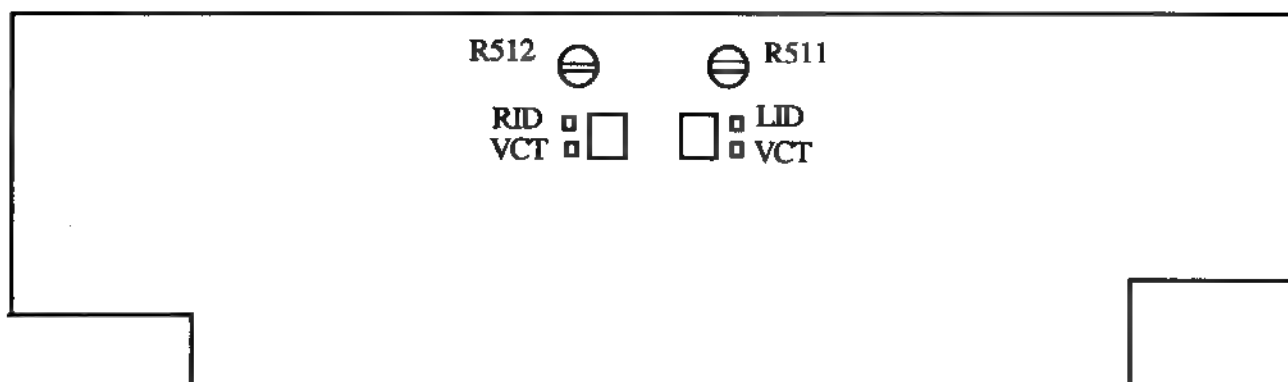
Amplifier section

Idling Current Adjustment

Connect the DC voltmeter to the terminals LID(RID) and CT on the power amplifier pc board.

Adjust the semi-fixed resistor R511(R512) so that the indication of voltmeter is $5 \pm 0.5mV$.

Note:():Right channel

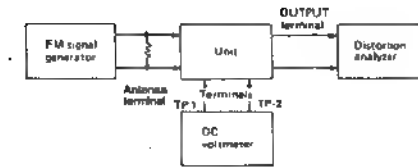


POWER AMPLIFIER PC BOARD

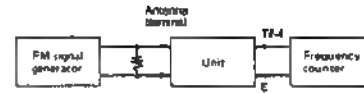
SOLDERING SIDE

FM section

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
I F	1	Fig. 1	99.1MHz 1kHz, 75kHz devi. 65dB(60dB)	—	99.1MHz	DC voltmeter	L101	$0 \pm 20\text{mV}$	Set the FM mode switch to MONO. Repeat the steps 1 and 2 until no further adjustment is necessary.
	2					Distortion analyzer	L102	Minimum	
V C O		Fig. 2	99.1MHz 1kHz, 75kHz devi. 65dB(60dB)	—	99.1MHz	Frequency counter	R201	$19\text{kHz} \pm 10\text{Hz}$	Set the FM mode switch to AUTO.
Stereo distortion		Fig. 3	99.1MHz Ext. modulation 65dB(60dB)	L+R 1kHz 67.5kHz devi.	99.1MHz	Distortion analyzer	IF on front end	Minimum	
Tuned indicator level	1	Fig. 3	99.1MHz 1kHz, 75kHz devi. 19.2dB(14dB)(130V model) 12dB (other models)	—	99.1MHz	TUNED indicator	R101	Light on	
	2		99.1MHz 1kHz, 75kHz devi. 18.2dB(13dB) 11dB (other models)					Light off	

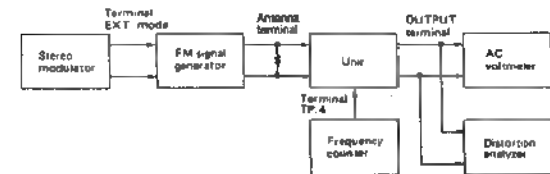


(Fig. 1)



Use the high impedance probe. (10:1)

(Fig. 2)

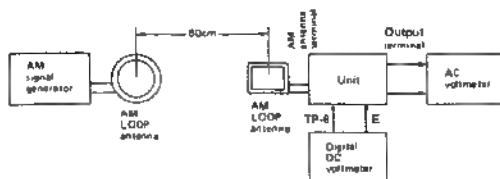


(Fig. 3)

AM section

Step	AM SG output	Tuned Frequency	Output indicator	Adjustment point	Adjust for
1	—	522kHz (530kHz) (531kHz)	Digital DC voltmeter	OSC coil on RF block (L151)	$1.5\text{V} \pm 0.1\text{V}$
2	603kHz, 60dB/m (600kHz) 400Hz 30% mod.	603kHz (600kHz)	A C voltmeter	RF coil on RF block (L151)	Maximum
3	990kHz, 60dB/m 400Hz 30% mod.	990kHz	A C voltmeter	L152	Maximum

Note: () : 120V model (10kHz step)
< > : Worldwide model

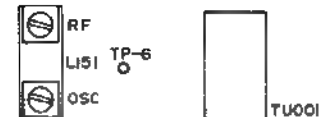


Reference specifications

Tuned voltage	AM	530kHz (U.S.A. model)	$1.5 \pm 0.4\text{V}$
		522kHz (European model)	$1.5 \pm 0.4\text{V}$
	DC voltmeter to test point TP-6)	1710kHz (U.S.A. model)	$8.0 \pm 0.5\text{V}$
		1611kHz (European model)	$7.5 \pm 0.5\text{V}$
FM		87.9MHz (U.S.A. model)	$2.0 \pm 0.5\text{V}$
		87.50MHz (European model)	$2.0 \pm 0.5\text{V}$
		107.9MHz (U.S.A. model)	$7.5 \pm 0.5\text{V}$
		108.0MHz (European model)	$7.5 \pm 0.5\text{V}$

Muting width: $35 \pm 10\text{kHz}$
Muting level: (U.S.A. model) FM $14 \pm 3\text{dB}$
(European model) FM $12 \pm 3\text{dB}$

Auto stop level: AM Less than 68dB/m
FM Less than 20dB μ

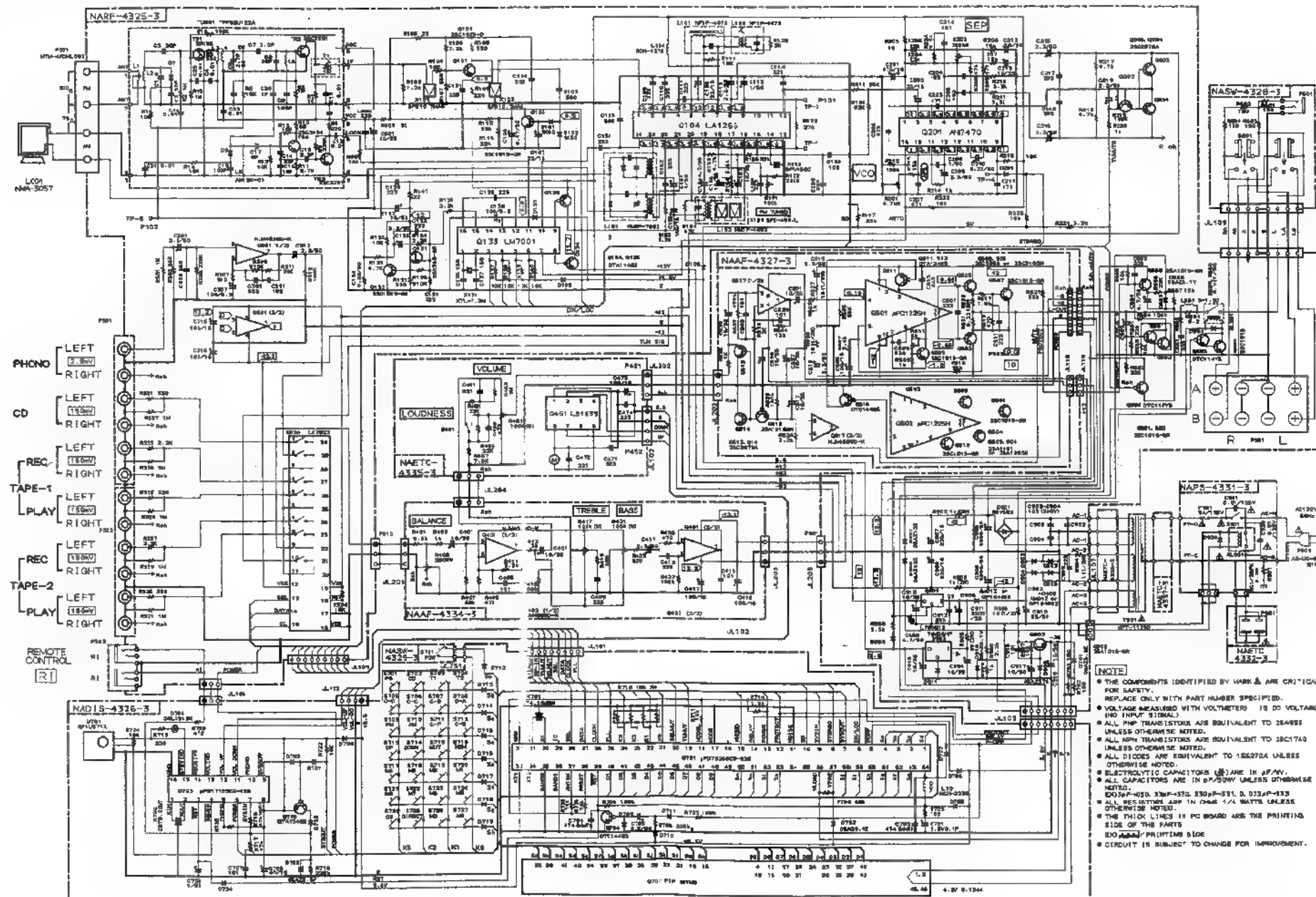


TU001



SCHEMATIC DIAGRAM

MODEL TX-930 (120V model)

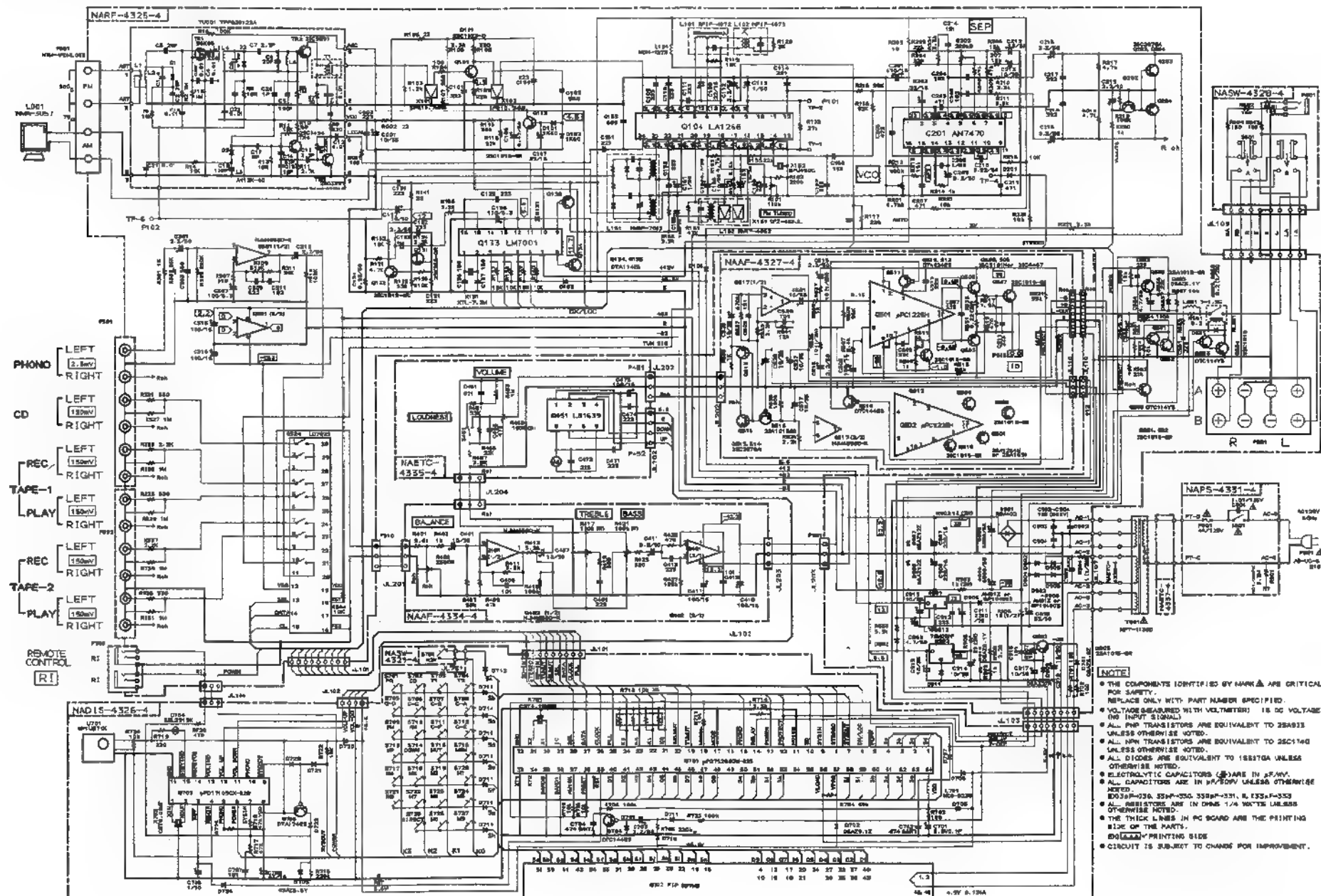


5

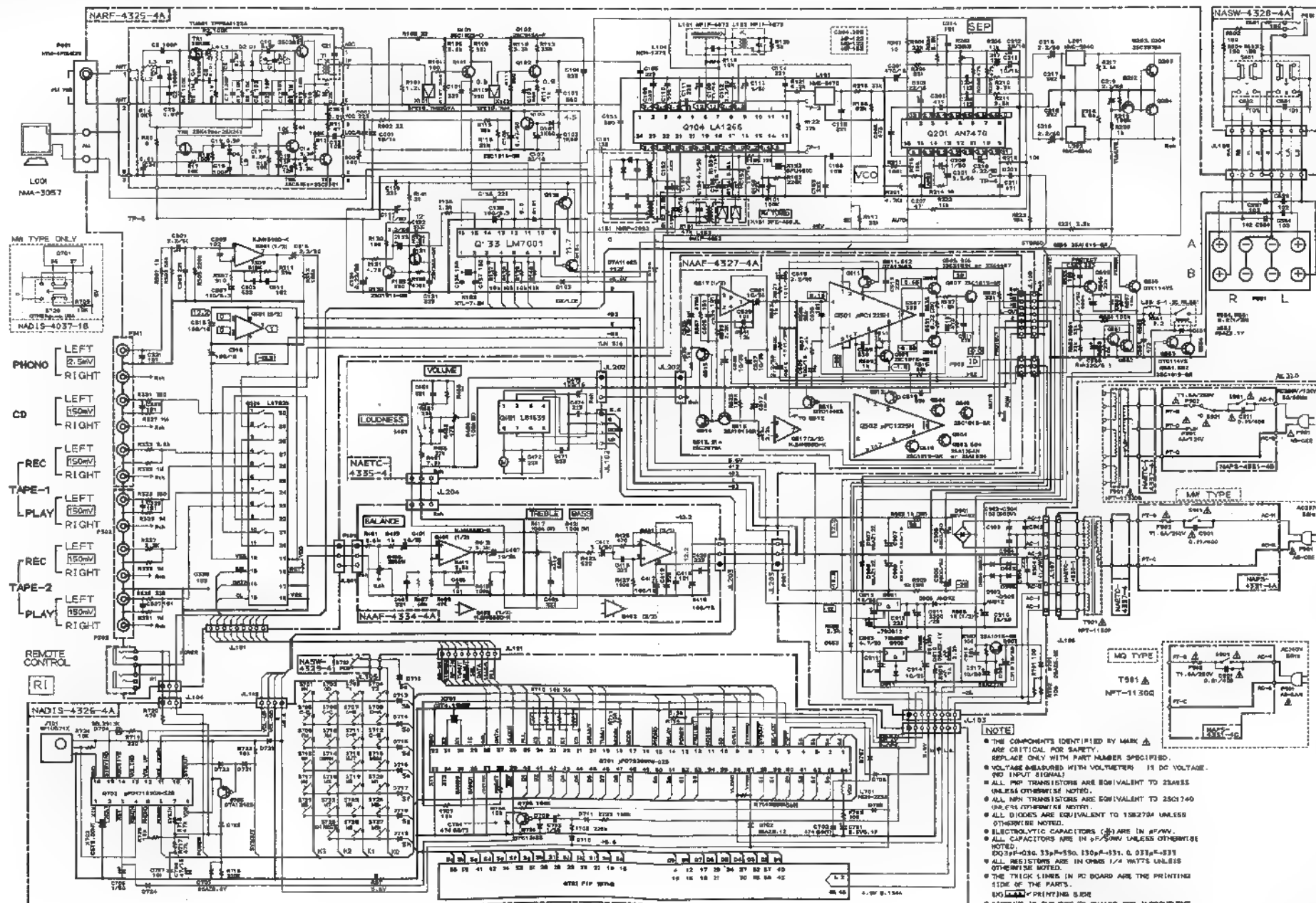


SCHEMATIC DIAGRAM

MODEL TX-910 (120V model)



1
—
2
—
3
—
4
—
5



- THE COMPONENTS IDENTIFIED BY MARK AND CRITICAL FOR SAFETY.
- REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH VOLTMETER: IS DC VOLTAGE, TWO INPUT SIGNALS.
- ALL PN TRANSISTORS ARE EQUIVALENT TO 2N3638 UNLESS OTHERWISE NOTED.
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2N51740 UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1N5272/5 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ARE IN μF UNLESS OTHERWISE NOTED.
- RESISTORS ARE IN Ω UNLESS OTHERWISE NOTED.
- DO3P=036.33P=036.33P=033.4. 033P=033
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING THICK OF THE PARTS.
- DO NOT PRINTING ERROR
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

PRINTED CIRCUIT BOARD-PARTS LIST

MODEL TX-930

TUNER CIRCUIT PC BOARD (NARF-4325-3/3A/3B)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end			Ceramic filters	
TU001	240084	TFPG2U122A <D>	X101,X102	3010071	SFE10.7MA5 <D>
	240085	TFPG4E122A <P/W/Q>	X101	3010081	SFE10.7MS3GYA <P/W/Q>
	ICs		X102	3010137	SFE10.7MMK <P/W/Q>
Q104	22240039	LA1266	X151	3010123	SPZ450JL
Q133	22240090	LM7001	X152	3010076	BFU450C
Q201	22240242	AN7470		Capacitors	
Q301	222502	NJM4558D-X	C001	354761009	10 μ F,35V,Elect.
Q324	22240158 or	LC7823 or	C106	354784799	0.47 μ F,50V,Elect.
	22240339	LC7823N	C107,C108	354742209	22 μ F,16V,Elect.
Q901	222780126	L78OS12	C112	354780229	2.2 μ F,50V,Elect.
Q902	222780055	78M05HF	C113,C161	354780109	1 μ F,50V,Elect.
	Transistors		C117	354781009	10 μ F,50V,Elect.
Q101	2211723	2SC1923-O	C131	374722234	0.022 μ F \pm 5%,50V,Plastic
Q102	2210746	2SC945A-P <P/W/Q>	C132	374723334	0.033 μ F \pm 5%,50V,Plastic
Q103,Q132	2211255	2SC1815-GR	C133	354780229	2.2 μ F,50V,Elect.
Q131	2212445	2SK365-GR	C134	354782299	0.22 μ F,50V,Elect.
Q134,Q135	2213510	DTA114ES	C138	354721019	100 μ F,6.3V,Elect.
Q202	2211455	2SA1015-GR	C154	354780479	4.7 μ F,50V,Elect.
Q203,Q204	2212285	2SC2878-A	C155	354741019	100 μ F,16V,Elect.
Q551,Q552	2211255	2SC1815-GR	C156,C157	354761009	10 μ F,35V,Elect.
Q553,Q556	221281	DTC114YS	C159	374723334	0.033 μ F \pm 5%,50V,Plastic
Q554	2211255	2SC1815-GR	C160	374721034	0.01 μ F \pm 5%,50V,Plastic
Q555,Q903	2211455	2SA1015-GR	C201	354744719	470 μ F,16V,Elect.
	Diodes		C202	354742209	22 μ F,16V,Elect.
D101,D102	223132	1K60	C204,C205	374721824	1800pF \pm 5%,50V,Plastic <D>
D103,D105	223205 or	1SS270A or		374721224	1200pF \pm 5%,50V,Plastic <P/Q>
D131,D201	223163	1SS133		374721524	1500pF \pm 5%,50V,Plastic <W>
D551,D552	223205 or	1SS270A or	C206	374724734	0.047 μ F \pm 5%,50V,Plastic
D911	223163	1SS133	C207	370134714	470pF \pm 5%,100V,Plastic
D553,D910	224150512	05AZ5.1Y	C208	354780109	1 μ F,50V,Elect.
D701	224150683	05AZ6.8Z	C209	354780339	3.3 μ F,50V,Elect.
D901	22380038	RBV602	C210	354782299	0.22 μ F,50V,Elect.
D902-D906	22380035 or	GP104003 or	C212,C213	354761009	10 μ F,35V,Elect.
	22380046	AM01Z	C215,C216	354780229	2.2 μ F,50V,Elect.
D907,D908	224151203	05AZ12Z	C217,C218	374723924	3900pF \pm 5%,50V,Plastic
D909	224152704	05AZ27R	C219	354780229	2.2 μ F,50V,Elect.
	Coils and Transformers		C301,C302	354780229	2.2 μ F,50V,Elect.
L101	233401	NFIF-4072	C307,C308	354721019	100 μ F,6.3V,Elect.
L102	233402	NFIF-4073	C309,C310	374726224	6200pF \pm 5%,50V,Plastic
L103	233383	NMC-6070 <P/W/Q>	C311,C312	374721824	1800pF \pm 5%,50V,Plastic
L104	233409M022	NCH-1272	C313,C314	354780229	2.2 μ F,50V,Elect.
L151	232152	NMRF-7052,RF block	C315,C316	354741019	100 μ F,16V,Elect.
L152	232139	NMIF-4062	C551,C552	374724734	0.047 μ F \pm 5%,50V,Plastic
L201,L202	233294	NMC-5040 <P/W/Q>	C554,C563	354780479	4.7 μ F,50V,Elect.
L551,L552	231176	S-1.3C	C555	354722219	220 μ F,6.3V,Elect.
	Resonator		C905,C906	3504207	6800 μ F,50V,Elect.
X103	3010158 or	XTL-7.2M or	C907,C908	354742219	220 μ F,16V,Elect.
	3010141	XTL-7.2M,Crystal	C910	354783309	33 μ F,50V,Elect.
			C911	354752229	2200 μ F,25V,Elect.
			C913-C915	354761009	10 μ F,35V,Elect.
			C917,C918	354781009	10 μ F,50V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors			Capacitors	
R101	5210221 or 5210070	N06HR100KBD, Trim	C701	3000057 or 3000068	0.1F,5.5V or 0.047F,5.5V,Super
R201	5210216 or 5210062	N06HR5KBD or N06HR4.7KBD,Trim	C702,C704	375524744	0.47 μ F \pm 5%,50V,Plastic
R559,R560	452530824	8.2 ohm \pm 5%,1/2W,Metal	C703	353780229	2.2 μ F,50V,Elect.
R902,R903	441721024	1 kohm \pm 5%,2W,Metal	C705	353744709	47 μ F,16V,Elect.
R904	452530104	1 ohm \pm 5%,1/2W,Metal	C706	353780109	1 μ F,50V,Elect.
R905	441723904	39 ohm \pm 5%,2W,Metal		Resistor	
R906	441721004	10 ohm \pm 5%,1/2W,Metal	R710	49163103404	10 kohm \times 4,1/10W,Array
	Terminals			Switches	
P001	25060157	NTM-4PDML083,Antenna <D>	S701-S727	25035548	NPS-111-S510
	25060117	NTM-2PDML051,Antenna <P/W/Q>	S728	25065286	NSS22112 <W>
P301,P302	25045323	NPJ-6PDBL180	S729	25035548	NPS-111-S510
P303	25045172	HSJ1003-01-020		Holders	
P551	25060158	NTM-8PDML084,Speaker		27190810	FL
	Relay			27190811	LED
RL551	25065339	NRL-2P5A-DC24-046	POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-4327-3/3A)		
	Sockets		CIRCUIT NO.	PART NO.	DESCRIPTION
P310,P901	25050267	NSCT-3P95		ICs	
	Radiators		Q501,Q502	22240108	μ PC1225H
R1	27160176	RAD56	Q517	222502	NJM4558D-X
R2	27160145	RAD51		Transistors	
R3	27160166		Q503,Q504	2201693, 2201694, 2201696, 2202282 or 2202283	* 2SA1491-O, * 2SA1491-Y, * 2SA1491-P, * 2SA1265N-R or * 2SA1265N-O
DISPLAY CIRCUIT PC BOARD (NADIS-4326-3/3A/3B)			Q505,Q506	2201703, 2201704, 2201706, 2202292 or 2202293	* 2SC3855-O, * 2SC3855-Y, * 2SC3855-P, * 2SC3812N-R or * 2SC3812N-O
	Remote control sensor		Q507-Q510	2211255	2SC1815-GR
U701	24130007	GP1U571X	Q511,Q512	2212600	DTA124ES
	ICs		Q513,Q514	2212285	2SC2878-A
Q701	22240406	μ PD75268CW-025	Q515	2211455	2SA1015-GR
Q703	22240376	μ PD17103CX-528	Q516	221282	DTC144ES
	FL tube			Capacitors	
Q702	212093	FIP9BTM8	C501,C502	354761009	10 μ F,35V,Elect.
	Transistors		C505,C506	354741019	100 μ F,16V,Elect.
Q704	221282	DTC144ES	C507,C508	374723334	0.033 μ F \pm 5%,50V,Plastic
Q705	2212600	DTA124ES	C515,C516	354780229	2.2 μ F,50V,Elect.
	Diodes		C517	354761009	III μ F,35V,Elect.
D702	224150913	05AZ9.1Z	C525-C528	354761009	III μ F,35V,Elect.
D703	224150562	05AZ5.6Y		Resistors	
D704	225142	SEL2913K,LED	R511,R512	5215061	N08HR3KBC,Trim
D705-D707	223163 or	1SS133 or	R526,R527	442521004	III ohm,1/2W,Metal oxide film
D709-D724	223205	1SS270A	R531-R534	4500005	BPR2FK-0.22,Metal plate
	Resonators			Plugs	
X701	3010163	CST4.19MGW,Ceramic	P503,P504	25055495	NPLG-2P470
X702	3010154 or 3010190	CST8.00MT or CST8.00HSW,Ceramic			
	Coil				
L701	233400M220 or 233409K220	NCH-2238 or NCH-1284			

HEADPHONE TERMINAL PC BOARD (NASW-4328-3/3A)

CIRCUIT NO.	PART NO.	DESCRIPTION
S601	25035517	NPS-222-L479,Push switch
P601	25045255	YKB21-5009,Headphone terminal

POWER SWITCH PC BOARD (NASW-4329-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
S751	25035548	NPS-111-S510,Power switch

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4331-3/3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
D920	223163 or 223205	1SS133 or 1SS270A,Diode
C901,C920	3500065A	△ DE7150FZ103PAC400V/125V, Capacitor IS
C901A	27301216	△ Cover for C901 <P/W/Q>
R901	431523355	△ 3.3 Mohm,1/2W,Solid resistor <D>
S901	25035550	△ NPS-111-L512P,Power switch
F901	252050	△ 5A(ST-6),Primary fuse <D/W>
F901a	250113	△ SN5051,Fuseholders <D/W>
F902	252075	△ 2.5A-SE-EAK,Primary fuse <P/W/Q>
F902a	25050065	△ YSH403T,Fuseholders <P/W/Q>
RL901	25065269	△ NRL-1P5ADC12-36,Relay <D>
	25065248	△ NRL-1P15ADC12-29,Relay <P/W/Q>
P902	25050267	NSCT-3P95,Socket

AC OUTLET TERMINAL PC BOARD (NAETC-4332-3)

(120 V model only)

CIRCUIT NO.	PART NO.	DESCRIPTION
P951	25050409	△ NSCT-4P234,AC outlet

AC OUTLET TERMINAL PC BOARD (NAETC-4333-3/3A)

(230 V and Worldwide models only)

CIRCUIT NO.	PART NO.	DESCRIPTION
P952	25050410	△ NSCT-2P235,AC outlet
F951	252047	△ 2A-SE-EAK,Fuse <P>
F951a	25050065	△ YSH-403T,Fuseholders <P>

TONE CONTROL CIRCUIT PC BOARD (NAAF-4334-3/3A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q401,Q402	222502	NJM4558D-X
	Capacitors	
C401,C402	354761009	10 μ F,35V,Elect.
C407,C408	354761009	10 μ F,35V,Elect.
C409,C410	374722234	0.022 μ F \pm 5%,50V,Plastic
C411,C412	354780339	3.3 μ F,50V,Elect.
C413,C414	374722234	0.022 μ F \pm 5%,50V,Plastic
C417,C418	354741019	100 μ F,16V,Elect.
	Resistors	
R405,R406	5104225	N11RGLC250KWT22Z, Balance,variable
R417,R418	5104230	N14RLC100KWT22Z,Treble,variable
R421,R422	5104230	N14RLC100KWT22Z,Bass,variable

VOLUME CONTROL CIRCUIT PC BOARD (NAETC-4335-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q451	22240322	LB1639,IC
C453,C454	374724734	0.047 μ F \pm 5%,50V,Plastic capacitor
C473	354741019	100 μ F,16V,Elect. capacitor
R459,R460	5104243	N16RGM100KBTP25F,Volume, variable resistor
S451	25035609	NPS-122-L571,Loudness switch
P451	25050267	NSCT-3P95,Socket
P452	25050268	NSCT-4P96,Socket

VOLTAGE SELECTOR SWITCH PC BOARD (NASW-4338-3)

(Worldwide model only)

CIRCUIT NO.	PART NO.	DESCRIPTION
S902	25065287	△ NSS-22113P,Voltage selector switch

NOTE: <D>:120 V model only
 <P>:230 V model only
 <W>:Worldwide model only
 <Q>:240 V model only

CAUTION:Replacement for transistor of mark *,if necessary,
 must be made from the same beta group (HFE) as
 the original type.

NOTE: THE COMPONENTS IDENTIFIED BY MARK △
 ARE CRITICAL FOR RISK OF FIRE AND
 ELECTRIC SHOCK. REPLACE ONLY WITH
 PART NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD-PARTS LIST

MODEL TX-910

TUNER CIRCUIT PC BOARD (NARF-4325-4/4A/4B)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end			Ceramic filters	
TU001	240084	TFFG2U122A <D>	X101,X102	3010071	SFE10.7MA5 <D>
	240085	TFFG4E122A <P/W/Q>	X101	3010081	SFE10.7MS3GYA <P/W/Q>
	ICs		X102	3010137	SFE10.7MMK <P/W/Q>
Q104	22240039	LA1266	X151	3010123	SFZ450JL
Q133	22240090	LM7001	X152	3010076	BFU450C
Q201	22240242	AN7470		Capacitors	
Q301	222502	NJM4558D-X	C001	354761009	10 μ F,35V,Elect.
Q324	22240158 or	LC7823 or	C106	354784799	0.47 μ F,50V,Elect.
	22240339	LC7823N	C107,C108	354742209	22 μ F,16V,Elect.
Q901	222780126	L78OS12	C112	354780229	2.2 μ F,50V,Elect.
Q902	222780055	78M05HF	C113,C161	354780109	1 μ F,50V,Elect.
	Transistors		C117	354781009	10 μ F,50V,Elect.
Q101	2211723	2SC1923-O	C131	374722234	0.022 μ F \pm 5%,50V,Plastic
Q102	2210746	2SC945A-P <P/W/Q>	C132	374723334	0.033 μ F \pm 5%,50V,Plastic
Q103,Q132	2211255	2SC1815-GR	C133	354780229	2.2 μ F,50V,Elect.
Q131	2212445	2SK365-GR	C134	354782299	0.22 μ F,50V,Elect.
Q134,Q135	2213510	DTA114ES	C138	354721019	100 μ F,6.3V,Elect.
Q202	2211455	2SA1015-GR	C154	354780479	4.7 μ F,50V,Elect.
Q203,Q204	2212285	2SC2878-A	C155	354741019	100 μ F,16V,Elect.
Q551,Q552	2211255	2SC1815-GR	C156,C157	354761009	10 μ F,35V,Elect.
Q553,Q556	221281	DTC114YS	C159	374723334	0.033 μ F \pm 5%,50V,Plastic
Q554	2211255	2SC1815-GR	C160	374721034	0.01 μ F \pm 5%,50V,Plastic
Q555,Q903	2211455	2SA1015-GR	C201	354744719	470 μ F,16V,Elect.
	Diodes		C202	354742209	22 μ F,16V,Elect.
D101,D102	223132	1K60	C204,C205	374721824	1800pF \pm 5%,50V,Plastic <D>
D103,D105	223205 or	1SS270A or		374721224	1200pF \pm 5%,50V,Plastic <P/Q>
D131,D201	223163	1SS133		374721524	1500pF \pm 5%,50V,Plastic <W>
D551,D552	223205 or	1SS270A or	C206	374724734	0.047 μ F \pm 5%,50V,Plastic
D911	223163	1SS133	C207	370134714	470pF \pm 5%,100V,Plastic
D553,D910	224150512	05AZ5.1Y	C208	354780109	1 μ F,50V,Elect.
D701	224150683	05AZ6.8Z	C209	354780339	3.3 μ F,50V,Elect.
D901	22380022	RBV402	C210	354782299	0.22 μ F,50V,Elect.
D902-D906	22380035 or	GP104003 or	C212,C213	354761009	10 μ F,35V,Elect.
	22380046	AM01Z	C215,C216	354780229	2.2 μ F,50V,Elect.
D907,D908	224151203	05AZ12Z	C217,C218	374723924	3900pF \pm 5%,50V,Plastic
D909	224152704	05AZ27R	C219	354780229	2.2 μ F,50V,Elect.
	Coils and Transformers		C301,C302	354780229	2.2 μ F,50V,Elect.
L101	233401	NFIF-4072	C307,C308	354721019	100 μ F,6.3V,Elect.
L102	233402	NFIF-4073	C309,C310	374726224	6200pF \pm 5%,50V,Plastic
L103	233383	NMC-6070 <P/W/Q>	C311,C312	374721824	1800pF \pm 5%,50V,Plastic
L104	233409M022	NCH-1272	C313,C314	354780229	2.2 μ F,50V,Elect.
L151	232152	NMRF-7052,RF block	C315,C316	354741019	100 μ F,16V,Elect.
L152	232139	NMIF-4062	C551,C552	374724734	0.047 μ F \pm 5%,50V,Plastic
L201,L202	233294	NMC-5040 <P/W/Q>	C554,C563	354780479	4.7 μ F,50V,Elect.
L551,L552	231176	S-1.3C	C555	354722219	220 μ F,6.3V,Elect.
	Resonator		C905,C906	3504207	6800 μ F,50V,Elect.
X103	3010158 or	XTL-7.2M or	C907,C908	354742219	220 μ F,16V,Elect.
	3010141	XTL-7.2M,Crystal	C910	354783309	33 μ F,50V,Elect.
			C911	354752229	2200 μ F,25V,Elect.
			C913-C915	354761009	10 μ F,35V,Elect.
			C917,C918	354781009	10 μ F,50V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R101	5210221 or 5210070	N06HR100KBD, Trim
R201	5210216 or 5210062	N06HR5KBD or N06HR4.7KBD,Trim
R559,R560	452530824	8.2 ohm $\pm 5\%$, 1/2W, Metal
R902,R903	441729114	910 ohm $\pm 5\%$, 2W, Metal
R904	452530104	1 ohm $\pm 5\%$, 1/2W, Metal
R905	441723904	39 ohm $\pm 5\%$, 2W, Metal
R906	442531004	10 ohm $\pm 5\%$, 1/2W, Metal
	Terminals	
P001	25060157 25060117	NTM-4PDML083, Antenna <D> NTM-2PDML051, Antenna <P/W/Q>
P301,P302	25045323	NPJ-6PDBL180
P303	25045172	HSJ1003-01-020
P551	25060158	NTM-8PDML084, Speaker
	Relay	
RL551	25065339	NRL-2P5A-DC24-046
	Sockets	
P310,P901	25050267	NSCT-3P95
	Radiators	
R1	27160176	RAD56
R2	27160145	RAD51
R3	27160166	

DISPLAY CIRCUIT PC BOARD (NADIS-4326-4/4A/4B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote control sensor	
U701	24130007	GP1U571X
	ICs	
Q701	22240406	μ PD75268CW-025
Q703	22240376	μ PD17103CX-528
	FL tube	
Q702	212093	FIP9BTM8
	Transistors	
Q704	221282	DTC144ES
Q705	2212600	DTA124ES
	Diodes	
D702	224150913	05AZ9.1Z
D703	224150562	05AZ5.6Y
D704	225142	SEL2913K,LED
D705-D707	223163 or	1SS133 or
D709-D724	223205	1SS270A
	Resonators	
X701	3010163	CST4.19MGW,Ceramic
X702	3010154 or 3010190	CST8.00MT or CST8.00HSW,Ceramic
	Coil	
L701	233400M220 or 233409K220	NCH-2238 or NCH-1284

CAUTION: Replacement for transistor of mark *, if necessary,
must be made from the same beta group (H_{FE}) as
the original type.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C701	3000057 or 3000068	0.1F, 5.5V or 0.047F, 5.5V, Super
C702,C704	375524744	0.47 μ F $\pm 5\%$, 50V, Plastic
C703	353780229	2.2 μ F, 50V, Elect.
C705	353744709	47 μ F, 16V, Elect.
C706	353780109	1 μ F, 50V, Elect.
	Resistor	
R710	49163103404	10 k Ω $\times 4$, 1/10W, Array
	Switches	
S701-S727	25035548	NPS-111-S510
S728	25065286	NSS22112 <W>
	Holders	
	27190810	FL
	27190811	LED

POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-4327-4/4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q501,Q502	22240108	μ PC1225H
Q517	222502	NJM4558D-X
	Transistors	
Q503,Q504	2202243, 2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O
Q505,Q506	2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O
Q507-Q510	2211255	2SC1815-GR
Q511,Q512	2212600	DTA124ES
Q513,Q514	2212285	2SC2878-A
Q515	2211455	2SA1015-GR
Q516	221282	DTC144ES
	Capacitors	
C501,C502	354761009	10 μ F, 35V, Elect.
C505,C506	354741019	100 μ F, 16V, Elect.
C507,C508	374723334	0.033 μ F $\pm 5\%$, 50V, Plastic
C515,C516	354780229	2.2 μ F, 50V, Elect.
C517	354761009	10 μ F, 35V, Elect.
C525-C528	354761009	10 μ F, 35V, Elect.
	Resistors	
R511,R512	5215061	N08HR3KBC, Trim
R526,R527	442521004	10 ohm, 1/2W, Metal oxide film
R531-R534	4500005	BPR2FK-0.22, Metal plate
	Plugs	
P503,P504	25055495	NPLG-2P470

NOTE: <D>: 120 V model only

<P>: 230 V model only

<W>: Worldwide model only

<Q>: 240 V model only

HEADPHONE TERMINAL PC BOARD (NASW-4328-4/4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
S601	25035517	NPS-222-L479, Push switch
P601	25045255	YKB21-5009, Headphone terminal

POWER SWITCH PC BOARD (NASW-4329-4)

CIRCUIT NO.	PART NO.	DESCRIPTION
S751	25035548	NPS-111-S510, Power switch

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4331-4/4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
C901	3500065A	△ DE7150FZ103PAC400V/125V, Capacitor IS
C901A	27301216	△ Cover for C901 <P/W/Q>
R901	431523355	△ 3.3 Mohm, 1/2W, Solid resistor <D>
S901	25035550	△ NPS-111-L512P, Power switch
F901	252049	△ 4A(ST-6), Primary fuse <D/W>
F901a	250113	△ SN5051, Fuseholders <D/W>
F902	252073	△ 1.6A-SE-EAK, Primary fuse <P/W/Q>
F902a	25050065	△ YSH403T, Fuseholders <P/W/Q>

TONE CONTROL CIRCUIT PC BOARD (NAAF-4334-4/4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401, Q402	222502	NJM4558D-X
	Capacitors	
C401, C402	354761009	10 μ F, 35V, Elect.
C407, C408	354761009	10 μ F, 35V, Elect.
C409, C410	374722234	0.022 μ F \pm 5%, 50V, Plastic
C411, C412	354780339	3.3 μ F, 50V, Elect.
C413, C414	374722234	0.022 μ F \pm 5%, 50V, Plastic
C417, C418	354741019	100 μ F, 16V, Elect.
	Resistors	
R405, R406	5104225	N11RGLC250KWT22Z, Balance, variable
R417, R418	5104230	N14RLC100KWT22Z, Treble, variable
R421, R422	5104230	N14RLC100KWT22Z, Bass, variable

VOLUME CONTROL CIRCUIT PC BOARD (NAETC-4335-4)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q451	22240322	LB1639, IC
C453, C454	374724734	0.047 μ F \pm 5%, 50V, Plastic capacitor
C473	354741019	100 μ F, 16V, Elect. capacitor
R459, R460	5104243	N16RGM100KBTP25F, Volume, variable resistor
S451	25035609	NPS-122-L571, Loudness switch
P451	25050267	NSCT-3P95, Socket
P452	25050268	NSCT-4P96, Socket

VOLTAGE SELECTOR SWITCH PC BOARD (NASW-4338-4)

CIRCUIT NO.	PART NO.	DESCRIPTION
S902	25065287	△ NSS-22113P, Voltage selector switch <W>

NOTE: <D>: 120 V model only
 <P>: 230 V model only
 <W>: Worldwide model only
 <Q>: 240 V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

ONKYO CORPORATION

International Division: 2-1, Niashin-cho, Neyagawa-shi, OSAKA 572, JAPAN

Tel: 0720-31-8133 Fax: 0720-34-1340

ONKYO U.S.A. CORPORATION

200 Williams Drive, Ramsey, N.J. 07446, U.S.A.

Tel: 201-825-7950 Fax: 201-825-8150

ONKYO Europe GmbH

Immeuble Le DIAMANT, Domaine Technologique De Saclay, 4 rue Rene Razel,

91892 SACLAY, FRANCE Tel: (1)69 33 14 15 Fax: (1)69 41 29 66

ONKYO FRANCE S.A.R.L.

Immeuble Le DIAMANT, Domaine Technologique De Saclay 4 rue Rene Razel,

91892 SACLAY, FRANCE Tel: (1)69 41 35 10 Fax: (1)69 41 35 84